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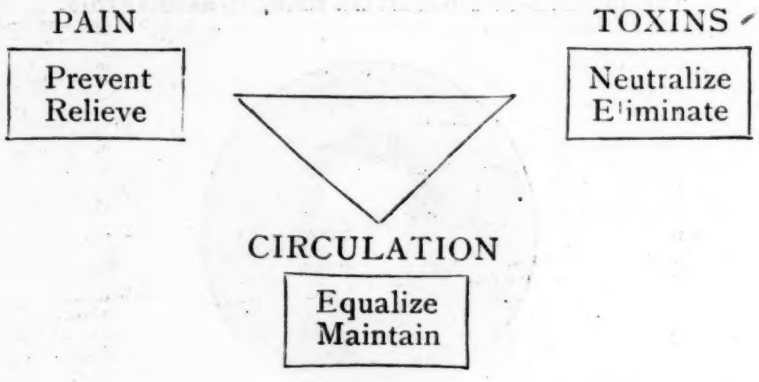

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SOME APPLICATIONS OF PHYSIOLOGY TO MEDICINE.

IV.—HIGH BLOOD PRESSURE FROM THE PHYSIOLOGICAL ASPECT.*

BY

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IT need hardly be said that the problem of the causation and mechanism of persistent high blood pressure has proved one of exceptional complexity and difficulty. High pressure is a condition or symptom, like pyrexia, probably of different types and modes of causation.

Methods of Estimation.

As regards the measurement of the pressure a combination of the auscultatory and tactile methods is by far the best—very superior as regards accuracy and convenience to various oscillatory and other methods that have been proposed. It may be taken that the readings obtained are in the vast majority of cases an approximately correct estimate of the pressures actually present within the artery. In a very limited number of cases with thickened *contracted* arteries local resistance to compression in the arterial wall may lead to an over-estimation of the intra-arterial pressure, an error that can be obviated by the method of repeated or continued armlet compression. But it is to be noted that in a certain number of cases the method of repeated compression may in turn introduce sources of fallacy if the auscultatory method *per se* is used. For in some individuals compression, repeated a number of times or kept on for some time, may cause serious disturbance in the auscultatory indices—for example, the systolic reading may come to be much too low, while the diastolic reading becomes too high. The error is detected by combination with the tactile method; the tactile systolic index is now found to be considerably higher than the auscultatory systolic, the pulse beat being easily felt at the wrist long before the armlet compression has been reduced sufficiently to allow the sound constituting the auscultatory systolic index to be recognized. This is one of the instances which illustrate the necessity of checking the auscultatory systolic index by the tactile method—recommended as a routine procedure by Professor Spencer Melvin and myself[23] many years ago. The source of fallacy in question is in my experience seldom, if ever, of importance in high-pressure cases, so the matter need not be further pursued in the present connexion.

Systolic and Diastolic Pressure Levels.

Since Melvin and Murray[27] stated the systolic and diastolic pressure levels in young adults in 1914, evidence on a large scale has become available as to the "normal" pressures in healthy persons—systolic readings 110 to 125 mm. being most common (sitting position), while the value may sometimes be as low as 100 to 105 mm. in subjects in good training, or may be as high as 130 to 140 mm. in some young persons in good health, there being evidently a setting of the normal pressure at different heights. The diastolic level in young adults is usually between 60 and 80 mm.; the pulse pressure has ordinarily a value of 40 to 45 mm.

The relation of age to the pressure values is a matter on which much evidence has accumulated in recent times, thanks largely to the American insurance statistics (Symonds,[40] Rogers and Hunter,[35] MacKenzie,[21] and others), in which records from hundreds of thousands of individuals are available; also to the work of Stocks and Karn[38] in this country. The results led to a correction of a current idea as to there being an extensive rise of pressure in normal persons as life advances and as body weight increases. It is true that there is a very appreciable rise in the later half of life, but this is much more limited than has been currently believed by clinicians, dealing with persons who come under their observation for some ailment or other. Thus the average systolic pressure, in the enormous numbers examined, has been found to show only a comparatively small increase, whatever may be the significance of the much higher pressures recognized in some individuals who enjoy good health.

When the averages of very large numbers are dealt with, it is evident the rising pressure of childhood undergoes some acceleration about puberty and reaches the normal adult level somewhere in the age period of 17 to 20; there is some evidence of a slight subsequent lowering in the early adult years. The pressure then alters little up to the age of about 40, after which a more definite progressive rise becomes manifest. But the actual increase under the combined influences of age and the usually associated increase of weight is on an average under 15 mm., in some statistics much less.

The statistics bear strong testimony to the relative constancy of systolic pressures at different ages, when estimated with the necessary allowances and corrections; they make clear that exceptionally high pressures in healthy persons must be very infrequent, otherwise the averages would be much higher. It is noteworthy that the statistics have largely been obtained in America, with its stress and hurry of life. The importance of hereditary influences or familial tendencies is marked in regard to the occurrence of unusually high pressures, and the association of high pressures with obesity is a notable one, though by no means invariable. At all ages persons of heavy build have higher average systolic pressures (for example, 10 mm., etc.) than persons of light build.

The importance of the diastolic pressure reading and the consequent obtaining of the pulse pressure value need hardly be emphasized. Diastolic pressure represents the resistance against which the contracting left ventricle has to force open the aortic valves, and it represents the constant stress which the arterial walls have to stand. Its importance with regard to the bursting of a weakened artery is great, more than the transient systolic rise caused by each heart beat. This is illustrated by the comparative rarity of cerebral haemorrhage in cases of aortic regurgitation, with its high systolic but low diastolic pressures. Systolic pressure taken by itself may give very defective and misleading indications, for the systolic readings may be at the same level in profoundly different conditions of the circulation.

The diastolic pressures afford data valuable for interpretation of the condition present. Normal or supernormal systolic pressure taken by itself does not necessarily indicate efficiency as regards the mass movement of the blood in the circulation.

Modes of Death in Subjects of High Pressure.

Taking the average results of very large numbers as regards health and duration of life, it is clear that the dice are loaded against the subjects of high pressures, though of course there are many individual examples of long life and activity under those conditions.

In excessively high pressures the fatal ending seems to come by cerebral haemorrhage in about 20 per cent., changes having supervened in cerebral vessels by this time. The not infrequent occurrence of cerebral haemorrhage (like pulmonary and gastro-intestinal haemorrhages) during sleep was long a puzzling phenomenon in view of the accepted conclusion that the blood pressure is lowered during sleep. Why should the haemorrhage take place during a period of reduced pressure? Observations by the present writer[22] on the remarkable rise of pressure that may be associated with disturbed sleep, exciting dreams of motor effort, nightmares, etc., afford an explanation. In contrast with the definite lowering of pressure attending on sound sleep, the steep rise during disturbed sleep may reach an elevation attained in the same individual in the waking state only during vigorous or even violent muscular exertion—for example, systolic pressure rises to 182 and 200 mm. from normal levels of 125 to 130 mm.

[3446]

* Read at the James Mackenzie Institute for Clinical Research, St. Andrews, October, 1926. Previous articles of this series were published in the BRITISH MEDICAL JOURNAL, 1923, vol. i, p. 51; vol. ii, pp. 215, 278, and 1196.

respectively, while diastolic pressure rises from 75 to 105 mm., etc.

It is significant that an American observer (Krumbhaar[30]) has recently found that a relatively large number of ruptures of the heart occur during sleep. In about 50 per cent. of high-pressure cases death is ascribed to cardiac failure. Of course the work of the heart is greatly augmented by the excessive resistance against which it has to pump out its contents. But the reserve power of the healthy cardiac muscle, as Sir James Mackenzie repeatedly emphasized, is very great; the heart is an organ of phenomenal power and endurance, granted a good supply of normal blood to its walls. What usually happens is not simply the wearing out of such a heart by excessive work, but the defeat of a labouring heart impaired by defective nutrition due to lesions of the coronary circulation, and deficient quality of blood resulting from damaged kidneys and other organs. The remaining proportion of deaths has been attributed mainly to uraemic conditions, but are really complex in causation in presence of widespread derangements of function in the later stages.

Interpretation of High Pressures.

The phenomenon of persistent elevation of the arterial pressure may be regarded from different standpoints and given quite different interpretations. It may be looked on as a result of irritative and deranging influences (circulatory toxins or other causes) frequently leading to the development of symptoms of ill health, increasing the work of the heart and tending to cardiac failure, stressing the vascular walls, promoting their degeneration and predisposing to cerebral haemorrhage, kidney changes, etc.

From another point of view the high pressure may be looked on as essentially a compensatory process, while attended in the long run by certain unfavourable effects on the heart and blood vessels. The raised pressure is regarded as compensatory in the sense of its maintaining the circulation or driving more blood through some vital organ that requires it—for instance, the brain, kidney, heart muscle, etc.—either when the flow has been subnormal or when a higher pressure and more rapid flow would be useful in view of functional or structural defects in the tissue.

Janeway[17] concluded that in some persons an average pressure far above the normal is necessary to ensure the requisite capillary blood flow, the optimum arterial pressure sometimes being 200 mm. or more, instead of 100 to 145 mm. Oliver[33] remarks: "We are apt to forget that high arterial pressure is not infrequently a necessary evil and should sometimes be regarded as one of the natural defences of the body." Herringham,[16] referring to certain high-pressure cases, says: "I make little doubt that a high blood pressure is necessary for the life of these patients."

Clifford Allbutt[1] wrote long ago: "High pressure is an attempt of the organism to maintain the equilibrium of the circulation." In his last work[2] he remarks: "The truth is that as high pressures creep on stealthily, the system as silently adapts itself to them; so that blindly to try to reduce excessive pressures permanently to the normal would be as harmful in practice as fallacious in reason." While advising gradual reduction towards the level suitable for the particular individual, he severely criticizes the teaching, based on the belief that high pressure is compensatory, that treatment should not be applied to high pressures: "If an ergot-like poison were crimping up one's arteriolar system or directly irritating the vasomotor centre, would one decline to relax the system for fear of destroying compensation? Certainly not."

While it is well known that a lowering of pressure is sometimes attended by unfavourable symptoms, this does not necessarily prove that the elevated pressure had primarily been compensatory. The rise may have been due to irritative morbid influences in presence of which habituation or adjustment had at length developed, a new pressure level being established. Later, if a fall occurs, readjustment at this phase may not be practicable, especially in presence of failing heart action with defective regulating mechanisms and probably deterioration in kidney efficiency, structural lesions, etc.

It is obvious that with declining heart power relaxation of the arterioles by vaso-dilator drugs would naturally produce unfavourable results, since the physiological mechanism which tends to keep up the aortic pressure by vaso-constriction in presence of defective cardiac output would be upset. But such considerations do not establish the beneficial or compensatory nature of high pressures while the heart is efficient.

It was long ago suggested that high blood pressure might be useful, as far as the kidney is concerned, when there is an excess of material of some sort to be excreted or when the functional power of the organ is defective from structural or other causes. A recent paper from this laboratory by C. Reid,[34] dealing with a mixed series of high pressures, some with and some without renal involvement, yields evidence that does not support the idea of a compensatory function with regard to renal function. Substantial lowering (20 to 60 mm., etc.) of pressure by drugs of the nitrite series or by venesection did not impair the power of the kidney to concentrate urea or diminish the total urea excretion in the vast majority of cases; the urea and non-protein nitrogen of the blood were not increased during the periods of reduced pressure—there was no accumulation of these bodies in the blood to indicate defective excretion. Evidently renal function was well maintained, so far as urea and non-protein nitrogen are concerned. Some clinical observations as regards phenolsulphonephthalein by Gruber, Shackelford, and Ecklund,[14] and on guanidine by Major,[24] afford similar indications; the excretion of these substances in the urine was not lessened during periods of lowered pressure.

Causation of High Pressures.

It is hardly necessary to recall the various influences that have been invoked to account for the development of high pressures: (1) nervous, (2) endocrine, (3) toxic, and (4) renal.

While it is obvious that some powerful agency is at work, the search for definite pressor bodies (from any source) in the circulation has proved to be singularly inconclusive. Clifford Allbutt said: "Such catch phrases as intestinal toxins, kidney inadequacy, endocrine disorder, and the like are but dust in our eyes."

Mechanism of High Pressures.

Ideas as to the relations of high pressure and the frequently associated arterial sclerosis have varied much. The old view of von Basch regarded sclerosis as the cause of the high pressure, while the later one of Huchard made the high pressure primary and the sclerosis secondary. At the present time it is accepted that there are two distinct conditions; there may be sclerosis without high pressure at any stage, and high pressure without sclerosis, though persistent high pressure favours the development of sclerosis.

Studies on the viscosity of the blood in high-pressure conditions have not provided any explanation applicable on a wide scale, though a limited group of high-pressure cases associated with polycythaemia and augmented viscosity has been recognized. In the absence of a great increase in blood viscosity or of blood volume (conjoined with ineffectiveness of the normal mechanism of accommodation of such increased volume) it is evident that high pressure must depend on excessive frictional resistance or diminished capacity of the vascular system, or a combination of these factors. The factor commonly accepted as the main one is increased peripheral resistance — increased frictional resistance to the onward movement of the blood from the arteries, dependent on narrowing of the outlet by active contraction of the arterioles or by structural change.

In view of the work of Krogh, Lewis, Dale, and others, which has emphasized the independent powers and strong contractility of the capillaries, the question naturally arises as to the part which these may play in determining excessive resistance in high-pressure conditions, as distinguished from the normal state in which the capillary resistance seems to be slight. Some observations on capillary pressures on the skin, made by modern methods, are described (Boas and Frant[8]) as showing the presence of excessively high values in some types of high arterial pressure, in contrast to cases of simple high pressure (hyper-

piesia, primary or essential hypertension, etc.); this suggests the possible existence of two categories of high arterial pressure, one with and the other without high capillary pressures.

It is to be remarked, with reference to the numerous studies of capillary pressures that have been made by different observers, that measurements of capillary pressure in the skin afford no valid evidence as to the average pressure in the capillary system as a whole, or as to the friction in the total capillary bed. For the capillary pressures in the skin (finger, etc.) are profoundly influenced by local conditions of arterial tone, with the result that the digital capillary pressure may rise while the pressure in the brachial artery falls, and vice versa. And the conditions in the skin area and the splanchnic area of the circulation are frequently opposed, as in muscular exercise, etc. There are no means of determining the relations between the pressures in the skin capillaries and in those of internal organs.

It is not warrantable to speak of "capillary pressure" in the same sense as "arterial pressure," for the latter has a definite value practically identical in all the larger arteries, while the former shows diverse and varying pressure values in the multitude of capillary districts. Still, if it should be confirmed that the skin capillary pressures fall into two categories in cases of high arterial pressure, such a differentiation may prove to have clinical significance. Apart from the question of capillary resistance playing an important part, it is evident that a diminished *capacity* of the capillary system would have important effects on the circulation. But there are no means of gauging the size of the total capillary bed.

In the healthy person at rest the arterial pressure which is normal for that individual is remarkably constant within narrow limits, apart from ascertainable disturbing conditions; the regulating nervous mechanism (medullary centres) is very efficient, as shown by there being little or no change in aortic pressure when the peripheral resistance is markedly increased by artificial compression of large arterial trunks like the brachial or femoral. But in the high-pressure subject this regulating mechanism has ceased to be adequate; the pressure remains at an abnormally high level, and is often subject to sudden and extensive variations, sometimes in the absence of any recognizable cause or from slight exciting influences that would have little effect in the normal individual. The normal regulating mechanism includes the depressing or inhibitory effect on the vasomotor centre of high blood pressure acting (1) directly on the centre and (2) through afferent impulses from the heart, aorta, sinus caroticus,* etc. In addition, there is the controlling influence of the vagus centre on the cardiac pump, this centre being also influenced directly by the blood pressure in it and reflexly by afferent impulses from the heart, aorta, and sinus caroticus. Additional recent evidence with regard to this mechanism is to be found in experimental inquiries by Anrep and Starling[4] (cross-circulation experiments), Hering,[15] Nash[30] (sinus caroticus), Daly and Verney.[12] The observations of Eyster and Hooker[13] on the influence of afferent impulses from the aorta have recently been corroborated.

Some Occasional Postural Effects in Man.

Recent observations by me have shown that in some persons the sudden assumption of the horizontal position may cause an abrupt fall of general arterial pressure of variable amount, sometimes associated with a marked though transient attack of giddiness; the latter is probably due to the pressure change, being absent in these subjects when the pressure fall is not very considerable. Evidently what happens is that the increase of blood pressure in the head on lying down flat, due directly to the hydrostatic factor—the difference in the influence of gravity—depresses the vasomotor centre, causing vascular relaxation and a marked fall of aortic pressure, sufficient sometimes to disturb the equilibrating mechanism of the brain. These unusual cases, not subjects of high pressure so far as has been observed, are explicable as depending on an exaggeration of the normal depressing or inhibitory action exercised on the vasomotor centre by a local rise of blood pressure. The fall of pressure is not explained by depressed heart action, there being little alteration in the rate of the beat; pronounced vagus slowing is not observed. Here the vagus centre is not made to show enhanced controlling power over the heart by the increase of blood pressure in the head, which is sufficient to produce strong though very temporary depression of the vasomotor centre. Hence an excessive susceptibility of the vasomotor centre is postulated in the subjects showing this reaction. The brief duration of the marked fall of pressure is a point of difference from the experimental results of Anrep and Starling, who found a continued effect on the vasomotor centre from increased blood pressure in the head in their cross-circulation experiments. The reaction in man described above is in contrast to the less uncommon occurrence of giddiness on suddenly standing or sitting up from the recumbent posture, associated with a lowering of the blood pressure in the head from the direct influence of gravity—as well as other possible causes of disturbance of the equilibrating mechanism. In the cases above referred to giddiness did not occur on suddenly standing or sitting up—only on lying down.

Relation of the Medullary Centres to High Pressures.

Increased peripheral resistance, raising the arterial pressure, evidently depends essentially on constriction of the minute vessels, due to the overactivity of the vasomotor centre or to causes acting directly on the vascular tubes. But there is more involved than a simple increase in peripheral resistance, however produced; for a rise of pressure from this cause acting alone would, in accordance with Marey's law, induce slowing of the heart by enhancing the controlling action of the vagus centre. But in high-pressure cases this slowing is wanting, the pulse usually being normal in rate or more or less extensively accelerated. Thus in a series of 241 cases Mannaberg[26] found 55 per cent. with normal pulse rates, 43 per cent. with quickened pulses (mostly in women), and only 3 with slow pulses. The high pressure fails to bring out the normal controlling influence of the vagus centre on the heart rate, an indication that alongside of the constricted state of matters in the peripheral vessels there is an altered condition in the medulla, affecting the vagus centre and no doubt the closely related vasomotor centre—overaction of the vasomotor centre producing excessive general vascular constriction, alongside of altered behaviour of the vagus centre.

Accepting the conclusion that in high pressures overactivity of the vasomotor centre is caused by pressor agencies, whether nervous or chemical, it is evident that such pressor action may act in two ways: (1) by a direct irritative action on the centre, or (2) indirectly, by impairing the blood supply and oxidation in the centre, and thus exciting it to overactivity, as such conditions are known to be very effective in doing.

Starling[27] has suggested a local impairment of this kind as being possibly due to claudication of the vessels supplying the centre, or to toxic damage of its capillaries or interference with the oxidative process, and that such may be responsible for certain forms of high pressure. Following upon this suggestion Bordley and Baker[9] have recently reported the finding of arterio-sclerosis in the medulla in a number of high-pressure cases, in contrast to the findings in subjects who had had normal pressures. But it remains to be seen whether such sclerotic changes are primary or secondary.

There are various phenomena of high-pressure cases that are difficult of explanation on the hypothesis of limitation by structural causes of the medullary blood supply.

1. The frequently marked effects of continued mental and muscular rest—often involving a lowering, for the time being, of the pressure more extensive than can easily be accounted for by the slowing of the heart and the absence of the pumping movements of the skeletal muscles which promote the venous return to the heart during movement, etc.

2. The remarkable lowering of many abnormally high pressures that has been noted during sleep (Brooks and Carroll,[10] Müller,[29] Blume,[7] Katsch and Pansdorf[19]). A

* The "sinus caroticus" is a name applied to the first portion of the internal carotid artery immediately above the bifurcation of the common carotid. It receives afferent fibres from a twig of the glosso-pharyngeal nerve.

notable constancy of pressure levels during sleep (for example, 5 mm. variation during sleep) has been observed, in contrast to the extensive variations often seen in the waking state. Katsch and Pansdorf found an unusual range of reduction during sleep in essential hypertension, in contrast to other forms of hypertension where there was little or no reduction.

3. The occurrence in some cases of extensive variations of pressure from day to day or at shorter intervals (hours) —apparently not accountable for by changes in heart action.

4. The apparently "spontaneous" recoveries from high pressures sometimes seen.

5. The pressure-reducing effects of the ingestion of large amounts of water, to be referred to later (Orr and Innes).

There is obvious difficulty in reconciling such considerations with the idea of a high-pressure mechanism depending on the existence of established structural changes in the vessels of the medulla or the general circulation; they point to a notable variability of resistance, as contrasted with a fixed increased of resistance set up by structural alterations in the vascular circuit. An assumption that such variability of pressures is explicable by changes in the cardiac action is not warranted.

It would appear that the incidence of the pressor influence responsible for high blood pressures is primarily on the central nervous system, not directly on the peripheral vessels as a whole. The disturbance of the medullary regulating mechanism is evidently due either to (1) interference with the normal blood supply to the brain or the medullary portion of it, or (2) the influence on the centres of some abnormal disturbing agent arriving in the blood, or (3) nervous impulses reaching the centres from other parts of the brain or from peripheral structures.

As regards (1) it remains to be seen whether indications may be derived from a study in high-pressure subjects of the behaviour of the respiratory centre, which from its close topographical and functional relations with the vagus and vasomotor centres would naturally be affected by inadequacy of the blood supply to this part of the brain stem.

Suggested Pressor Substances.

Salt, cholesterol, urea, adrenaline, "renin" (from damaged renal tissue), and many other substances have been under trial, and have either been acquitted or given a verdict of "not proven."

There has long been a presumption that protein derivatives—products of incomplete or perverted metabolism or results of microbic action in the alimentary canal or the tissues—are frequently concerned in the genesis of excessively high blood pressures, though a pressor agent in the blood has not been identified or isolated. Experimental investigations (feeding, etc.) on this subject have given conflicting results in recent years. Thus Mosenthal,[28] Squier and Newburgh,[36] Strouse and Kelman,[39] and Anderson[3] report no elevation of pressure from increased protein feeding in high-pressure cases, while some other observers—for example, Nuzum[31] and others among recent workers—have reported different findings. Foster describes a reduction of pressure from long-continued low protein diet, and Benedict a reduction from normal under a diet of low calorie value and low protein content. Again, in a collection of low-pressure cases it has been found that high protein feeders are 28 per cent. less numerous than among normal blood pressures.

Allbutt concluded that there is no evidence of the accumulation of non-protein nitrogen in the blood or default in the urine, that intestinal disorder is incidental, and that there is no proof of the absorption of intestinal poisons to be got from examination of the urine. It is to be remarked that feeding experiments deal more directly with the amount and completeness of protein metabolism rather than with possible perversions of this process in certain types of this subject.

In view of the recognized hereditary liability to the development of high pressures—as strikingly illustrated in many families—under the influence of nervous strain, worry, unfavourable habits of life, dieting, etc., there may well be inborn susceptibility to derangement in the metabolism of proteins and associated substances in these subjects.

Orr and Innes,[33] working in this laboratory, a few years ago made the remarkable observation that ingestion of large amounts of water tend to induce a notable lowering of elevated blood pressure—a result attributed to the washing out of intermediate metabolites, presumably of protein origin. Whatever be the ultimate explanation, the pressure change is often both marked in extent and of much longer duration than is commonly the case with depressor agencies. Reduction from such a pressure as 200 mm. to normal, maintained over many months, has been effected. Decided results seem to be obtainable in a considerable proportion of high-pressure subjects. The application of this method is being made the subject of further investigation; it is clearly worthy of being given an extended trial. The slight preliminary rise of pressure which may follow the ingestion of large amounts of water does not seem to have been attended by any unfavourable results in primary or essential hypertensions.

A pressor agent recently suggested by Major and Stephenson[25] is guanidine—a substance which, on intravenous or intramuscular injection, gives a rapid and extensive elevation of arterial pressure. The excretion of guanidine was found to be markedly interfered with in experimental uranium nephritis (dogs), and in a number of high-pressure patients a diminished output was observed and compared with the normal daily average of about 100 mg. It is suggested that guanidine, as being somewhat difficult of excretion, might be partially retained in developing kidney defect at a phase too early to be recognized by the usual tests. In this connexion it would be interesting to have evidence as to the blood pressure in tetany—for example, from parathyroid defect, where guanidine has been found in the blood by Noël Paton and his associates; also whether any high-pressure cases are favourably affected by parathyroid feeding and calcium salts. Hyperthyroidism, though sometimes associated with high blood pressure, is ruled out as a common cause by the results of examination of the basal metabolism.

Relation to Kidney Conditions.

While kidney conditions have long been prominently in question, whether in primary or secondary relations, it is now generally accepted that high pressures frequently occur (hyperpiesia, primary or essential hypertension, etc.) apart from any recognizable lesion or functional defect of the kidneys as examined by modern methods. Still there can be no question that the presence of kidney defect, whether it be primary or secondary, constitutes a formidable handicap on the subject of high pressure and profoundly influences his chances of health and duration of life. This is so, whether the detriment arises through (1) limitation of the excretory function of the organ, leading to the retention of noxious irritant substances in the circulation, or (2) to the entry into the blood of some product of damaged renal tissue—for instance, the "renin" of Tigerstedt and Bergman, suggested as a causal agent by Batty Shaw[5] in some high-pressure cases.

Experimental reduction of the amount of kidney tissue below a certain limit (for example, to one-third) has been shown to lead to a rise of blood pressure; this has been assumed to be due to the action of retained substances (of unknown composition) which ought to have been excreted. The actual presence of such bodies of a pressor nature has not been demonstrated in the blood. In these reduction experiments there is the complication of the possible absorption into the circulation of pressor substances from damaged renal tissue, as indicated by the recent evidence adduced by J. R. Cash[11] in which 50 to 85 per cent. diminution of renal substance was associated with a pronounced rise of arterial pressure.

Relation to Depressor Substances.

Defect of depressor substances in the circulation is evidently one of the conceivable causes, assuming that the normal blood pressure is maintained by the interplay and balance of pressor and depressor influences. As is well known, chemical substances of depressor nature are very widely distributed in the animal tissues, and many observers question whether the substances are mainly of the nature of histamine and choline or are quite separate from these bodies—a question which is in dispute, as shown

by the recent contributions of Vincent and Sheen[41] and others. If high pressure can result from default of depressor substances the failure of the search for separate pressor agents in the blood might conceivably be accounted for.

A tissue extract that has recently been the subject of active investigation is liver extract, which has been found to have pronounced depressor effects, studied by various observers. As prepared by James, Laughton, and Macallum,[18] the active extract is stated to be free from the shock-producing substance histamine and from choline. Fresh extract is necessary, and while the experimental effects are marked, the clinical data in high-pressure cases in man are not conclusive. Major reports striking and lasting effects in certain high pressures of recent origin without recognizable lesions, while not overlooking the occurrence of occasional "spontaneous" recoveries in such cases. In "fixed" pressures of long standing there was little evidence of specific effect with the liver extract. Some observers interpret the depressor effects of the liver extracts which they used as being due to histamine and choline (Best, Dale, Dudley, and Thorpe[6]).

Conclusion.

From the foregoing considerations it is evident that while the incidence of the disturbing agency on the medullary regulating centres is clearly indicated, precise and adequate knowledge of the causation and mechanism of high pressures is defective. The fact of high pressures coming under observation in man only, and the consequent inapplicability of many of the methods of experimental research, have to be borne in mind as limiting the modes of attack upon the problem. While it is obvious that much more knowledge is necessary for the definite solution of the question involved, it has seemed advisable to take stock of the present situation as it appears to a physiologist, in order to avoid the waste of laborious work in accumulating data such as are already available. It is necessary to keep an open mind as to the possibility of a solution being found in an unexpected direction—in the discovery of a precise causal agent or agencies different from those that are mostly in question at the present time as bearing on the condition of high pressures, which may prove to be multiform in causation and mechanism as also in clinical type.

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THE INSECT TRANSMISSION OF ONCHOCERCA VOLVULUS (LEUCKART, 1893),

THE CAUSE OF WORM NODULES IN MAN IN AFRICA.*

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AMONG the families of parasitic nematodes which infest man none surpasses in diversity of interest the family Filariidae. This is due both to the pathogenic effects produced by some species, and also to the strange biological adaptations in the human host and in those insect vectors so far known. Complex problems are presented by the larval habits of different species, some living in the blood stream, others having their chief habitat in the skin; some showing the remarkable phenomenon of periodicity, the causes of which are still obscure. No less important are its historical associations; since it was with the species *Filaria bancrofti* of this family that Manson worked when, in 1878, he made the discovery—destined to revolutionize the tropics—of the part played by insects in the transmission of human disease. From this observation dates all that research into the association of insects with disease which has already produced such significant results and which is daily achieving fresh discoveries in the ever-widening domain of human and animal parasitology.

The Genus Onchocerca.

Included in the family Filariidae is the genus Onchocerca (Diesing, 1841), which has one species, *O. volvulus*, parasitic in man in Africa, another species, *O. caecutiens*—so closely allied with *O. volvulus* that some authorities consider it identical—parasitic in man in Central America, and several species parasitic in domestic and other animals in various parts of the Old and the New World. Naturally the two species which are parasites of man are of great direct importance. They have a restricted geographical distribution, the ill effects produced by them being confined to the limited regions in which they occur. Of a different order, and affecting man much more widely, are the indirect ill effects produced by those species which infest domestic animals, especially cattle.

Onchocerca volvulus (Leuckart, 1893) infests man in tropical Africa with an intensity which varies in different localities. In West Africa there are large areas in which a very high percentage of the total population is infested. Prout (1901) in Sierra Leone was one of the first to describe it. The worms live in nodules in the subcutaneous and deeper tissues, and give rise to larvae which find their way into the skin; an infested area of skin may contain vast numbers of larvae, so much so that not even the smallest portion can be removed without numerous larvae being found. Different observers have attributed to the worm an etiological significance in the production of very diverse pathological effects, which depend on the distribution of the worm itself in the body and of the larvae in the skin. Several forms of skin disease, itch, ulcers, as well as glandular enlargements, hydrocele, and elephantiasis, are some of the conditions with the production of which this worm is credited.

Mode of Transmission of Onchocerca.

The transmitting agents of several of the Filariidae are already known, if we accept invasion of the proboscis as evidence of the insects being capable of transmitting; up to the present time, however, no one has succeeded in demonstrating by what means any species of the genus Onchocerca is transmitted from man to man or from animal to animal. As a result of investigations carried out at intervals during the past four years I believe that I am now in a position to state that the conditions essential to transmission of *O. volvulus* are fulfilled by a biting insect, a species of the genus Simulium, named very appropriately *Simulium damnosum*. These investigations were undertaken in the Konno district of the Sierra Leone

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Protectorate, where the worm is common. More detailed accounts are being communicated to the *Annals of Tropical Medicine and Parasitology*, in which the first experiments were published in February, 1926.

The Konno District.

The Konno district of the Protectorate of Sierra Leone lies to the north of the railway line which traverses the Protectorate from west to east. It is a hilly region drained by several large rivers and a multiplicity of small streams; the hills are in most cases clothed with dense bush right to the summit. Each village has in its immediate vicinity several streams; swampy areas produced by silting up and overflow of the streams are numerous and biting insects are plentiful. The population is largely agricultural, and both sexes spend much time working on farm lands situated in the dense bush; the streams are used for latrine purposes as well as for washing and drinking. The result is a goitrous population and one heavily infected with urinary schistosomiasis; intestinal diseases, helminthic, protozoal, and bacterial, are rife. The following facts concerning the disease caused by *O. volvulus* demonstrate its prevalence and illustrate the kinds of observation made in order to ascertain its pathogenic effects on the population.

The Subcutaneous Nodules.

The character of the subcutaneous nodules produced by *O. volvulus* varies from a smooth, soft, just palpable nodule to a large, irregularly nodular, hard mass of the size of a large walnut. The first type is usually found in the region of the great trochanter, on the ribs, and on the scalp; the second is generally closely associated with joints, more especially the elbow and knee joints; neither type is usually adherent to the skin, but in some cases, especially over the region of the great trochanter, the skin over the nodule is thickened, partly adherent, and polished on the surface from pressure.

Distribution of the Larvae.

The larvae of this species were seldom found by me in the blood, only a rare larva being present occasionally in the blood film, and that probably derived from the infected skin. The larvae are present in the skin, and may often be found there in large numbers, even when no nodules can be discovered. They are not, however, evenly distributed over the body; thus, while of 93 persons whom I examined by making four sections of the skin of each—that is, from the scapular, loin, thigh, and ankle region—over 45 per cent. proved to be infected with *O. volvulus*. The larvae occurred in these sites in the following order of frequency from the highest to the lowest: loin, thigh, scapular region, and ankle.

Diagnosis of Infection.

The presence of the worm in the body may be detected either by puncture of the nodules and the discovery of the larvae in the aspirated fluid, or by cutting off with a razor small pieces of the skin, which are then teased with strong needles in a drop of water, so as to liberate the active larvae; apparently the first discovery of microfilariae in the skin of man by this latter method was made by O'Neill in 1875 on the Gold Coast. The larvae, although they do not live in the blood, have nevertheless to be distinguished from those of *F. bancrofti*, *L. loa*, *A. perstans*, and also from *Ag. streptocerca*, the last named being a skin microfilaria described by Macfie and Corson (1922). It was found in the Konno district that only 40 per cent. of those who had *O. volvulus* larvae in the skin had also subcutaneous nodules, while of those in whose skin larvae could not be found 16 per cent. had nodules. The examination of skin gave, therefore, a higher percentage of positive findings, and it has the advantage of being easier to carry out in natives than puncture of the nodules.

Pathogenic Effects of the Worm.

In view of the fact that many observers have recorded severe lesions of the skin, glands, and, in the case of the American human Onchocerca, of the eyes, it was advisable to ascertain whether similar effects would be found in Sierra Leone.

The Eyes.—Sixty-one cases in whom the eyes were examined and the skin was searched for larvae yielded 29 instances of *O. volvulus* infection. Only 6 of the 61 had any abnormal condition of the eyes and only 4 of these 6 belonged to the infected group. The eye conditions pterygium, blepharitis, and defect of vision were not associated with the presence of nodules in the head, and the last named appeared to be rather associated with advancing years than with the infection with *O. volvulus*. The examination revealed the fact that in the Konno population the eyes did not suffer notably from either toxic or other effects produced by the worm.

The Skin.—In an examination of 60 people 17 were found whose skin displayed no trace of disease visible to the unaided eye. This absence of obvious skin disease did not, however, prove to mean that none of these 17 cases was infected; for in point of fact no fewer than 8 of them were proved to be infected with *O. volvulus* by the discovery of its larvae in the skin. It was thought that the age of the person might have some bearing on the question, on the assumption that skin disease as a result of infestation might be a transitory condition on the one hand or a late developing one on the other. Against this, however, was the fact that the youngest case showing larvae in a good skin was 24 years of age, while the oldest was 51. The conclusion reached was that infection with *O. volvulus* does not necessarily connote obvious disease of the skin, although it may often coexist with it.

The Glands.—In 68 cases the glands were examined, and it was found that of those having *O. volvulus* larvae in the skin only 27 per cent. had enlarged glands, while of those not having larvae in the skin 32 per cent. had enlarged glands. Admitting that such skin examination as described must inevitably fail to reveal more than a fair percentage of cases, it may be said that on the whole this investigation did not yield definite evidence of pathogenic effects on the glands.

Thus neither in the case of the eyes, the skin, nor the glands did this Konno population show pathological effects definitely and solely attributable to *O. volvulus* infection. It is nevertheless probable that in localities where hyper-infection with the worm occurs a different clinical picture may be produced; very suggestive of this is the work of Ouzilleau (1913), who ascribes to the agency of *O. volvulus* lymphatic gland enlargement, hydrocele, and elephantiasis, occurring in a region in the Congo where *F. bancrofti* could not be found while *O. volvulus* was common. Dyce Sharp (1926), who has made a study of onchocerciasis in Nigeria, observes that the larvae of *O. volvulus* occur with great frequency in hydrocele fluid, and that, while possibly innocuous, they may well stand in some causal relationship to this condition as well as to elephantiasis.

Experiments to Discover the Transmitting Agent.

The investigation of the problem of transmission was begun in 1923-24 and continued in 1925 and 1926. The question was approached from the view that, as the larvae occur not in the blood but in the skin, any blood-sucking arthropod to be capable of transmitting it would have to damage the skin and dislodge the larvae in its efforts to reach blood. The Congo floor maggot *Auchmeromyia luteola*, common in Konno houses, seemed a possible agent in so far as producing damage to the skin is concerned, and specimens of this were first dissected, but no larvae were found. At several villages in December, 1923, and January, 1924, it was observed that *Simulium damnosum* Theob. was biting viciously and in great numbers beside the streams; it was noticed that although this species attacked the skin readily it was slow in reaching the blood and appeared to have difficulty in getting through the skin; this delay led to the belief that, in biting, this insect inflicted considerable damage on the skin, a belief which was strengthened by an examination of the biting apparatus of the fly. One hundred specimens captured were examined for larvae in the gut, but nothing was found, and owing to pressure of other work the search was abandoned temporarily.

Discovery of O. volvulus Larvae in the Gut of Simulium damnosum.

In 1925 at another village the search was resumed, and this time with success; infection of the gut with larvae morphologically identical with those of *O. volvulus* was discovered in 20 out of 780 flies—that is, in 2.6 per cent.—captured on unselected boys. Two men known to be infected with larvae of *O. volvulus* in the skin and in whom no other microfilariae could be detected were then submitted to the bites of the flies; as a result the percentage of gut infection in the fly rose at once to 17. The most heavily infected person was then submitted alone to the flies, the following regions being exposed to them in successive experiments: the loins and upwards gave 28 per cent. of gut infections; the waist and hips only gave 59 per cent. of gut infections; finally the person was exposed so that the flies could bite only on a four-inch-wide band of skin round the body, having the nodules, which were present near each trochanter, in the centre of the band; this experiment gave a positive gut infection in the flies of 80 per cent.

FIG. 1.—*Simulium damnosum* Theob.

Development in the Thorax of Simulium damnosum.

During the dissection of the thorax of 1,320 wild Simulium caught on unselected boys 15, or 1.1 per cent., were found to have developmental forms of some nematode larva present in the muscles of the thorax. Extensive examinations of samples of the population and of animals and a study of the biting habits of the fly led to the exclusion of other members of Filariidae and to the conclusion that the thoracic forms found were in all probability derived from *O. volvulus*. Flies fed on selected cases as described above were kept alive as long as possible and the thorax dissected; the effect was seen in a progressive rise of the percentage of thorax infection, first to 10 per cent., then to 32 per cent., and finally, in flies fed on the four-inch band in the heavily infected case, to the high figure of 82 per cent. No development actually into the head was observed in the course of these experiments, although one form was found partly embedded in the posterior part of the head. It was therefore impossible to make any definite statement at this time beyond recording the fact that the larvae of *O. volvulus* are readily ingested by *S. damnosum*, and that development up to a certain stage occurs in the gut and thorax of this blood-sucking insect.

Development of O. volvulus in the Head of Simulium damnosum.

In 1926 a further series of experiments was carried out and evidence was obtained that the development in the thorax continues with progressive increase in size and morphological modification till the larvae, having invaded the head region of Simulium, finally reach the proboscis. They enter the labium of the fly, where they remain coiled up and ready to emerge, which they do at once when provided with favourable conditions. The experiments are too numerous and long to give in detail here, but they may be summarized briefly as follows:

In six experiments 502 flies were allowed to feed freely on the heavily infected case referred to above; of this total 201 were dissected at a period later than the third day, and in the thorax of 127 of them (63 per cent.) developmental forms were discovered; in the head developmental forms were found in 34 (16 per cent.). The earliest infection of the posterior part of the head was five days, and of the anterior part of the head seven days, after the infecting feed. The development of *O. volvulus* in the fly from the time it is taken up from the skin until it reaches the labium and is mature and presumably capable of infecting a human being occupies about ten days. During this time the larva has undergone great changes in form; not only so, it has also increased in size from about 250μ long by 7μ broad to over 760μ long by 20μ broad.

Summary of Development in the Fly.

The skin forms taken into the gut of Simulium accumulate at the margin of the blood coagulum lying between this and the gut wall. They are very active and the majority pass out of the gut within twenty-four hours and may be found in the posterior part of the thoracic muscles in forty-eight hours. They have altered completely in shape, having increased in width and acquired a characteristic caudal spine-like appendage which may be either straight or much curved; they have also lost a great deal of their mobility. Several moults appear to occur before the form is reached which is capable of invading the head. The advanced thoracic forms show progressive stages of development of the alimentary canal, which is differentiated first into anterior and posterior portions, of different calibre and separated from each other; these unite later to form the uniform gut of the proboscis form, which runs from the head to open in a slit-like anus in front of the tail.

The Effect of Temperature on Development.

Differences in the rate of development were noted at different temperatures. It became evident that, although almost identical percentages of flies had acquired infection at the higher and lower temperatures used, the lower temperature had a retarding influence on development to such an extent that the flies usually died before the head became infected. Thus of 78 flies which lived for six days or over and were dissected, the absolute maximum temperature being 88° F., the absolute minimum 49°, and the average minimum 58°, only 5—that is, 6 per cent.—became infected in the head. Better results as regards head infection were obtained with an absolute maximum temperature of 87°, an absolute minimum of 63°, and an average minimum of 68°. In these circumstances, of 52 flies which lived six days or over and were dissected, 16—that is, 31 per cent.—were found infected in the head.

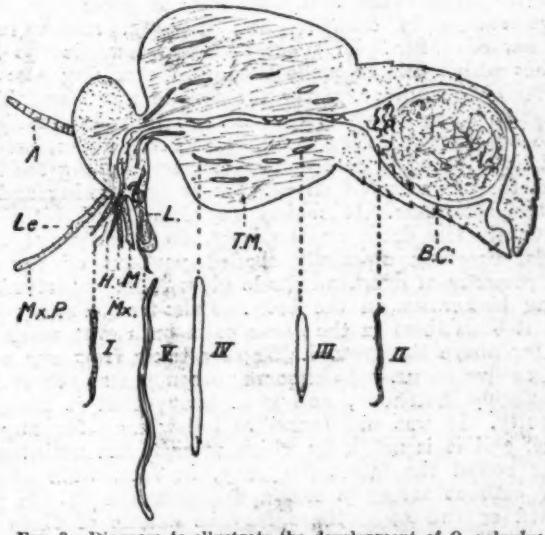

FIG. 2.—Diagram to illustrate the development of *O. volvulus* larvae in the tissues of *Simulium damnosum*. I, Larva from infected skin. II, Larva in mid-gut. III, Larva in thoracic muscles (early stage). IV, Larva in thoracic muscles (late stage). V, Larva in head and labium. A, Antenna. B.C., Blood coagulum. T.M., Thoracic muscles. L, Labium. Le., Labrum-epipharynx. H., Hypopharynx. M., Mandible. Mx., Maxilla. Mx.P., Maxillary palp.

Ovarian and Parasitic Development.

In flies allowed to feed on severely infected skin and then kept in tubes a heavy mortality ensued. Part of this appears to be due to the large number of worms developing in the fly's tissues; part was attributable to the ill effects of retention of the ova owing to the experimental conditions not being suitable for oviposition. Low temperature retarded the development of the ovaries as well as of the

parasites, and the two processes presented a definite correspondence in developmental rate. A correspondence of this kind is to be expected if the fly, after ovipositing, is to be capable of infecting at the next time of biting.

Emergence of Larvae from the Head of Simulium damnosum.

When the larvae had taken up their final position in the labium and were fully developed they were observed to emerge spontaneously into a drop of monkey serum which had been warmed; this phenomenon evidently depends on a definite attraction exercised by such serum, because a drop of warmed normal saline solution did not produce the same stimulating effect on them. Apart from such spontaneous emergence the larvae were seen to emerge when very light pressure was applied to the head region with a needle.

Experimental Inoculations into Animals.

Two monkeys were inoculated intra- and sub-cutaneously, the first in the flank and the second in the head, with advanced forms of larvae contained in the heads of flies. Neither of the monkeys showed any immediate reaction, the incisions healing by first intention, nor has any development so far become apparent. As, however, only two months have elapsed since the first animal was inoculated it is too early to express any opinion as to the ultimate result.

The Habits of Simulium damnosum.

Simulium damnosum Theob. in the Konno district is a small stout fly about 3 mm. long, almost black, and of inconspicuous appearance. It belongs to the same group of flies as those which are sometimes called Buffalo gnats, Turkey gnats, and black flies, and is common in many parts of equatorial Africa. It occurs in Uganda, where it is known as Mbwa, and in the Sudan, where it is called Kilteb; in the Konno it is called Mooli, and in Lokkoh, Poondee gootena=short mosquito. It is a notoriously vicious biter and is much dreaded in regions where it is numerous. The fly is to be found in the bush and grass in the vicinity of water; collectors always went to the waterside in order to find it easily. It dislikes strong sunlight and heavy rain; it likes shade and humidity; a great deal of its movement is by crawling and hopping, rather in the manner of a flea. In tubes it moves towards the light, a fact which can be made use of in changing flies from one tube to another. Only the female was found biting, and the biting habit is diurnal. It proved unwilling to come out far in strong sunlight to feed; it preferred to feed, if situated in fairly open country, during the hours when the sun was not strong, the early morning and late in the afternoon. It makes no sound and bites most frequently low down on the body, from the waist downwards, choosing especially shaded portions of the legs. The presence of overhead shade gives it an opportunity of biting higher up on the body. Palm-tree climbers state that it bites them in the dense palm bush even when they are far above the ground. The fly takes from one and a half to five minutes to engorge; when it has fed it looks remarkably distended, and is so heavy that it flies with difficulty. It was not found to follow man for any distance, and it is not a fly which attracts the attention by flying round the face. One may, in fact, walk along a path without seeing a single fly, although in the grass a yard or two away there may be dozens of them concealed. For this reason many Europeans who pass from rest house to rest house, and do not frequent the streams and marshy areas, may be entirely unaware of the presence of this noxious insect.

With this brief account of the habits of *Simulium damnosum* we may conclude the section dealing with *O. volvulus*. From the experiments recorded it appears extremely probable that this worm is transmitted from man to man by the bite of *Simulium damnosum*. At the same time it must be stated that the only unequivocal evidence will be that furnished by recovery of adult worms from animals or man infested by larvae which have developed in laboratory-bred flies as a result of feeding upon *O. volvulus* infested human beings. Such evidence I regret that I am not in a position to place before you, as up to the present time I have not been able to obtain laboratory-bred flies.

We may now pass on to consider very shortly two other species of the genus Onchocerca—namely, the American human parasite *Onchocerca caecutiens*, and a parasite of domestic cattle, *Onchocerca gibsoni*.

Onchocerca caecutiens.

This species was erected by Brumpt not so much on morphological as on biological grounds; it is a parasite of man in certain parts of Central America, and produces in man worm nodules which occur almost exclusively on the head. Brumpt (1919) named this species *caecutiens* ("blinding") because of the very remarkable account given by Robles in Guatemala of the severe eye symptoms and lesions which are associated with its presence, and which disappear with dramatic suddenness after removal of the nodules from the head. Robles (1919) records several instances in which the nodules formed by this species had eroded right through the cranial vault and were lying directly upon the meninges. On epidemiological grounds Robles several years ago suggested that two species of Simulium locally called "coffee flies"—that is, *S. dinelli* and *S. samboni*—were possibly the transmitting agents of this worm.

This American species is considered by some to be morphologically identical with the African one which has been discussed above. One of the points upon which Brumpt lays stress in the differential diagnosis of the two species is that the nodules caused by the American species are situated in the head in 99 per cent. of cases, whereas the African species causes nodules which in only 1 per cent. of cases are situated in the head. I may record here the fact that in one village in the Konno district I recently found that many of those who had nodules had them in the head. In a population of 66 examined, 33 (50 per cent.) presented nodules in some region of the body. Of the 33 who had nodules, 8 (24 per cent.) had them on the head, the diagnosis being made by puncture. On searching for an explanation for this unusual incidence two points were noted which appeared suggestive. The first was that this little village of eleven houses occupied less space than any other village of the same number of houses seen by me; the houses were arranged in a close ring practically touching each other. The second fact was that the village was shaded by large trees, as was also the path down to the river beside which the village was situated. In such a place as this it was possible for *Simulium damnosum* to attack the upper parts of the body without exposing itself to the sunlight. I concluded that it might be because of the local conditions as regards high shade that so many persons in this village presented nodules on the head. From inquiries which I have made from persons familiar with the conditions on the coffee plantation in Guatemala it appears that coffee in that country is most commonly grown under overhead shade. This fact might partly explain the incidence of the nodules of this species in the head, more especially if the lower parts of the body are covered by trousers and some kind of footwear.

Onchocerca gibsoni.

Of the numerous species of Onchocerca affecting domestic animals that which produces effects most similar to those of *O. volvulus* is *O. gibsoni* Cleland and Johnson, 1910. This species is a parasite of cattle; it produces worm nodules which damage the meat and render it unsaleable. Australia is one of the greatest sufferers from the effects of this species, and its presence in cattle entails a very heavy annual loss. Gilruth and Sweet (1911) state that no cattle station in Queensland is entirely free from the parasite, and that on some stations the infection amounts to 100 per cent. The worms live in nodules of varying size, some of them being subcutaneous and palpable or even visible, while others are situated deep in the intermuscular planes, in the connective tissue. They occur in such numbers in many cases that, although there is no evidence that either infection or injury to the health of man could result from consumption of meat containing

them, a carcass is rendered so unsightly by them that it is unfit for use. This has in the past led to the condemnation of such infected carcasses at the ports of London and Liverpool. It has been estimated (Commonwealth of Australia, 1917) that the discovery of the source of infection with worm nodules may eventually save Queensland over £1,000,000 a year if the grazier is aided in preventing infection.

Very little experimental work appears to have been done in Australia with any species of Simulium in connexion with the genus Onchocerca, although very numerous unsuccessful experiments are recorded with the larger biting insects such as tabanids. Yet Simulium is by no means unrepresented in Australia, several species having been described, one of which is suggestively named *furiosum*. Lea (1917) records a species of Simulium very abundant in the south-eastern parts of South Australia, occurring in thousands and causing series annoyance to horses and cattle. In view of the results obtained with *Simulium damnosum* and *O. volvulus* I would suggest that a species of Simulium may prove to be the carrier of *O. gibsoni* in Australia, or at least that this work on *O. volvulus* points to the desirability of carrying out a series of similar experiments with various species of Simulium and *Onchocerca gibsoni* in Australia.

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ANALYSIS OF A SERIES OF CASES OF CARDIO-VASCULAR SYPHILIS.

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THIS article deals with 105 cases of cardio-vascular syphilis among in-patients of the National Hospital for Diseases of the Heart, London, during the years 1919 to 1923 inclusive. An inquiry was sent to each patient so as to ascertain, as far as possible, his subsequent history, and, where practicable, the patients were re-examined in June, 1923, on which date 21 cases could not be traced. All the patients had positive Wassermann reactions in the blood serum. The series includes three patients each with a history of acute rheumatism, none of whom had mitral stenosis. One case terminated in an infective endocarditis. The symptomatology and course of these cases were not unlike the others, and they have not been excluded. The youngest patient was aged 22, the oldest, 71, the average age being 48 years. There were 97 males and 8 females—an approximate proportion of ten to one. Of the 105 patients, 31 had a history of chancre, and the average time between infection and admission to hospital was twenty-four and a half years.

Cardio-vascular syphilis in the first twenty years of its course is a latent disease; once it manifests its symptomatology its progress is rapid, as is indicated in dealing with the mortality. Valvular involvement in the form of aortic regurgitation occurred in 81 patients; no organic valvular lesion was found in the remaining 24. The critical symptoms, single or multiple, were as follows: shortness of breath, 55 cases; pain (cardiac), 44; giddiness, 17; palpitation, 16; fainting attacks, 11; cough, 4; haemoptysis, 1; swelling of legs, 1.

The relation of these symptoms and signs to the presence or absence of valvular lesions may be tabulated as follows.

Signs and Symptoms in 105 Cases of Cardio-vascular Syphilis: Group I, with Regurgitation; Group II, with no Valvular Lesion.

(The percentages are of the respective groups, not of the total cases.)

Signs and Symptoms.	Group I (81 Cases).		Group II (24 Cases).	
	No.	Per cent.	No.	Per cent.
Dizziness and giddiness	34	42	13	54
Faintness	4	5	3	12
Shortness of breath	71	88	17	75
Loss of weight	3	4	2	8
Night sweats	2	2.5	—	—
Swelling of legs	20	25	3	12.5
Pain—Slight	30	37	10	41
„ Moderate	13	16	5	20
„ Angina pectoris	9	11	1	4
Cough	13	16	—	—
Haemoptysis (no aneurysm)	7	9	2	8
„ (with aneurysm)	3	4	—	—
Epistaxis	2	2.5	—	—
Cyanosis	16	20	8	33
Pallor	32	40	2	8
Character of impulse:				
Faint	8	10	3	12
Slapping	12	15	3	12
Heaving	33	41	3	12
Signs of cardiac failure	20	25	3	12
Extra-systoles	6	7.5	4	16
Superficial arteries thickened	70	87	17	80

The average age of patients in Group I was 47 years; of those in Group II 49 years. The average time of infection before admission was: in Group I 25 years (24 cases); in Group II 24 years (7 cases).

Enlargement of the heart was detected in the groups of cases to the following extent. In the first group (of 81 patients with valvular involvement) slight enlargement of 3¾ inches or less from the mid-line to the left occurred in 2 cases (3 per cent. of the group); of moderate degree, 4 to 4¼ inches from the mid-line, in 13 cases (16 per cent.); and of great degree, or more than 4¼ inches, in 62 cases (77 per cent.). In the second group (of 24 patients without valvular involvement) the corresponding figures were: slight enlargement, 6 cases (25 per cent.); moderate, 4 cases (17 per cent.); great, 10 cases (42½ per cent.). Enlargement of the heart half an inch to the right of the right margin of the sternum was found in the first group in 21 cases (26 per cent.); an increase of 1 inch in 18 cases (23 per cent.); and an increase of 1½ inches in 7 cases (9 per cent.). In Group II the figures were: half an inch in 6 cases (25 per cent.); 1 inch in 2 cases (8 per cent.); 1½ inches in 1 case (4 per cent.). The average systolic pressure in the two groups was 154 in Group I and 141 in Group II. The pulse pressure was 86 in the first group and 52 in the second, while the difference between the systolic pressures of the leg and arm was 51 in the first group and 28 in the second.

The symptomatology of the two groups is not very dissimilar. There were no complaints of cough or bleeding from the nose in the patients who had no organic valvular lesions. Shortness of breath, the earliest symptom of failure of compensation, was somewhat more prevalent among the valvular group. Unusual symptoms were night sweats, haemoptysis (without aneurysm), and loss of weight. There was no evidence of pulmonary tuberculosis or of secondary infection of the cardiac valves in these cases.

Clinical Signs.

Thickened superficial arteries were not invariably present. The average systolic blood pressure in the brachial arteries was about 150 mm. of mercury; extremes (110 to 200) occurred, but were exceptional. At this particular time of life (45 to 50) arterio-sclerosis of a different type exists—the arterio-capillary fibrosis of Gull and Sutton. This is accompanied by a blood pressure higher than 150 systolic as a rule.[1] Where a systolic blood pressure of above 150 was found in the syphilitic cases there were probably other factors—either a high degree of aortic incompetence, or a complication of this diffuse form of

arterio-sclerosis. The blood pressure in the leg was generally higher than that in the arm, especially in the cases of aortic regurgitation. Dr. Strickland Goodall has pointed out that for a given degree of aortic regurgitation the greater the difference between leg and arm systolic pressures the better the prognosis. Dr. Goodall explains the difference as due to the existence of good vasomotor control. In a failing case of aortic regurgitation this control goes and the difference of pressure becomes less; hence the importance of this factor in immediate prognosis.

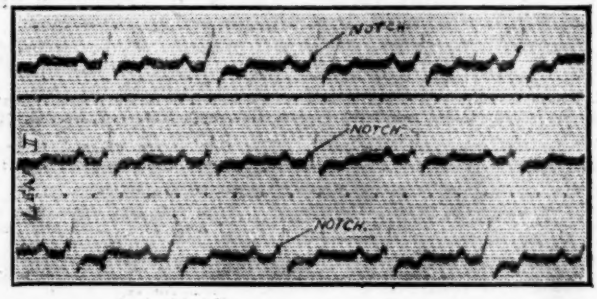
Enlargement of the Heart.—In the majority of cases the heart was greatly enlarged, but this was not restricted to cases of aortic regurgitation. The amount of enlargement varied with several factors—namely, the amount of regurgitation, the systolic blood pressure, and the state of compensation. In certain of the non-valvular cases with good compensation there was an enlargement of five inches to the left of the mid-line with a systolic blood pressure of 140 mm.; hence there was some other factor present which was not determined.

Aneurysm.—Of the 19 cases of aneurysm in this series aortic regurgitation was present in 17. In 15 of these the average systolic blood pressure (brachial) was 154 mm.; one patient had a pressure of 204 mm., but this must be regarded as exceptional. The height of blood pressure has no bearing on prognosis in these cases. It would be expected that those with the higher blood pressure would rupture the sac and die the earlier, but two patients with systolic blood pressures of 110 and 120 mm. respectively died within two years. Of the 19 patients, 10 had died within two years of diagnosis, and 5 were known to be alive; one patient was alive seven years after the diagnosis. The aneurysmal sac was seen and confirmed by *x*-ray screening in each case. The sac was situated intrapericardially in one case; it involved the ascending aorta in 7 cases; the arch in 6 cases; the ascending aorta and arch in 2 cases; the arch and thoracic aorta in 2 cases; and the thoracic and abdominal aorta in one case. There was also one case of aneurysm of the right coronary artery. The pressure of the aortic aneurysm was not accompanied by enlargement of the heart in one case of this series; there was no valvular lesion, and the systolic blood pressure was 130 mm. of mercury. Another patient died from a huge aneurysm involving the descending thoracic and abdominal aorta. He was a large man and a stoker by trade; his heart weighed 14 oz. *post mortem*.

Various Minor Signs.—Of the 105 cases albumin was found in the urine of 18 cases only; it was not a constant constituent. Albuminuria is therefore not a sign of cardio-vascular syphilis; its occasional appearance is not explained, as it was present in cases without cardiac failure and without renal involvement. In syphilitic heart disease tachycardia of high degree plays no part. The highest pulse rate of each patient while in hospital was recorded; the average of these rates was 105 a minute. The cardiac pain might be described as mild, moderate, and severe. The mild type was limited to the precordium, the moderate type radiated somewhat, and the severe form had the distribution of classical angina pectoris. These three types were phases of the same symptom, for in several cases the mild type became more severe with progress of time. About 75 per cent. of the patients had cardiac pain in the course of the disease—an incidence greater than that of other forms of heart disease. There were 10 cases of auricular fibrillation and 21 cases of heart-block; in 14 of the latter the auriculo-ventricular interval was greater than one-fifth of a second, 4 had a right bundle lesion, and one a complete auriculo-ventricular dissociation. One had an acute gummatous infiltration of the main bundle with invasion of other parts of the heart musculature. The latter case cleared up completely with treatment. Three of the patients with heart-block had Stokes-Adams attacks with loss of consciousness and twitchings; in these three the attacks were of short duration only. Involvement of the central nervous system was indicated as follows. In one case there was a pseudo-bulbar paresis. The tendo Achillis reaction was absent on one or both sides in 9 cases, and the knee-jerks in 4. In 4 cases the pupils were of the Argyll Robertson type; in 3 cases they were unequal; in 2 irregular; and in 2 sluggish in reaction to light.

Electro-cardiographic Findings.

Electro-cardiographic investigations were made in 66 cases with aortic incompetence, and in 19 cases without organic valvular lesions. Of the latter, 6 showed left ventricular preponderance; some of these had a normal systolic blood pressure; 44 of the 85 cases photographed showed this type of preponderance. Fifteen cases showed inversion of the T wave in the second lead. In cases where electro-cardiographs were taken at intervals of months there occurred an improvement in the general condition, where there was a change from an inverted T to an upright T. Forty-nine of the other cases showed delay, or delay and diminished amplitude of the wave. Of 85 patients 64 showed changes in this wave. Among those dead at the end of 1923, 21 cases had been electro-cardiographed; 15 showed changes in the T wave; of the other 6, 2 had aneurysms, one had a bizarre Q.R.S. complex in one lead, one had heart-block, and the last had auricular fibrillation. There is evidence here that changes in the T wave in the second lead are significant of severe myocardial damage.[2] Another point of importance in these photographs is the appearance of a small notch in the Q.R.S. complex (see accompanying tracing).



If this notch is seen in a case of unknown etiology a Wassermann test should be performed. The pathogenesis of this notch is unknown at present; it appears occasionally in other cases of myocardial mischief than those due to syphilis, and it renders the prognosis somewhat more serious. Twenty-five patients of the series showed this notching; of these, 6 were dead in 1923, one was alive three years and one four years after it was found. In the others this notch was noticed only in 1923 and the majority seemed to have a serious prognosis according to clinical findings. Two patients in whom the notching appeared in a series of photographs died during their stay in hospital. In a third patient the notching became less under treatment and he improved in health at the same time. In one case the T wave in the second lead became depressed during the attacks of angina pectoris. Willius and Barnes from the Mayo Clinic report similar occurrences with myocardial infarction.[3]

Mortality.

Down to the end of 1923 thirty patients had died out of 105, or 28 per cent.; 21 cases were not traced, hence the mortality was 36 per cent. of the total number traced. The average duration of symptoms before death was 4.2 years, the limits being one to twenty-two years. The deaths occurred on an average one year after the first admission to hospital. The course of the disease is rapid when once established. In 28 of these cases the heart was greatly enlarged; of the 2 other patients one had heart-block with Stokes-Adams attacks and the other had angina pectoris. A grave prognostic value must be attached to the signs of cardiac failure—namely, venous pulsation signs at the bases of the lungs, oedema of the legs, enlarged liver of the congestive type, and ascites. One or more of these signs had appeared in 22 of the 30 cases; 14 other patients showed some signs of cardiac failure and were not dead by the end of 1923.

Ten cases of auricular fibrillation occurred in the series; of these, 2 patients died. Some were known to have been fibrillating for several years. There were 21 cases of heart-block and 5 patients died. Six patients had bundle lesions or auriculo-ventricular dissociation; of these, 3 died and 3 were seriously ill.

Nine patients who died had aneurysm of the aorta; one

had aneurysm of the coronary artery. Angina pectoris occurred in 10 cases and 3 patients died. Among 11 necropsies no gross changes were found in the kidneys. In 2 cases adherent pericardium was found. The weight of the heart ranged from 23 to 32 oz., all being much enlarged. It appears that syphilitic pericarditis is a clinical entity; it was diagnosed in yet another patient who did not die. In South Africa a haemorrhagic blood-stained pericardial effusion occurs in natives with a positive Wassermann reaction in the serum; this is relieved by tapping and antisyphilitic measures.

Distinction between the Aortic Regurgitation of Rheumatism and that of Syphilis.

Rheumatic cases generally appear in young adults; syphilitic cases in the middle-aged. A history of the rheumatic infection may often be found, whereas that of syphilis is most difficult to elicit; it was only present in 27 per cent. of this series.

In the great majority of rheumatic cases there is a definite stenosis, with the typical facies; the aortic valve is generally the first to be involved in acute rheumatism. Confusion is caused sometimes by the occurrence of the presystolic murmur at the apex in cases of pure aortic regurgitation (Austin-Flint murmur). The distinction may be made by (1) the facies; (2) the pulse pressure, which is greater in aortic regurgitation with the Austin-Flint murmur, smaller in mitral stenosis and aortic regurgitation; (3) the pulmonary second sound is accentuated in mitral stenosis.

As pointed out by Dr. Strickland Goodall, in rheumatic cases the general progress of the disease is from the left cusp of the mitral to the left posterior cusp of the aortic valve; they have a common blood supply, and the aortic wall is not affected as a rule. The diastolic murmur is therefore blowing in character, and its area of maximum conduction is down the left side of the sternum. In syphilis the aorta is roughened, and the cusp most often involved is the right posterior. Hence the murmur is harsh in quality and the maximum conduction is down the right side of the sternum. In syphilis the accompanying signs in the central nervous system are of great diagnostic value. The arteries are thickened in pure rheumatic cases only where the pulse pressure is extremely high from large degree of aortic regurgitation.

Treatment.

Large doses of potassium iodide were usually employed, and mercury by inunction of blue ointment; in some cases arsenobenzol compounds were given intramuscularly. The intravenous administration was followed by some fall of blood pressure. The impression received from the cases directly supervised was that arsenobenzol compounds were unsuitable for the later stages of cardio-vascular syphilis. Digitalis was used in conjunction with iodides and mercury where cardiac failure was present.

In two cases of aneurysm of the aorta pain was greatly relieved by the administration of doses of horse serum twice a week or of haemoplastin twice a week. The explanation offered is that clotting was produced in the sac.

Conclusion and Summary.

1. The age incidence, the sex incidence, and the latent period after infection are similar in cardio-vascular syphilis and tabes dorsalis.

2. Once the symptoms and signs of cardio-vascular syphilis occur the course of the disease is, as a rule, rapid.

3. Signs in the nervous system are important in making a diagnosis.

4. The initial symptom is not constant, but in the majority of cases is either shortness of breath or cardiac pain, and, less often, giddiness and palpitation.

5. Cyanosis occurs in a greater percentage of cases without aortic regurgitation, and pallor in a great percentage of cases with aortic regurgitation.

6. The superficial arteries are thickened in the majority of cases, but the blood pressure is rarely above 150 mm. of mercury. Such a thickening with a similar rise of blood pressure occurs in the senile form of cardio-vascular degeneration.[1] Systolic blood pressure in the leg is greater than that in the arm, especially in cases with aortic regurgitation.

7. The heart is often much enlarged even in cases with no aortic regurgitation, and where the blood pressure is low.

8. A syphilitic myocardial degeneration may occur without valvular mischief, and sometimes without thickening of superficial arteries.

9. Cardiac pain is often mild in degree at the beginning and progresses to true angina pectoris.

10. Different portions of the heart and blood vessels are affected maximally in different cases.

11. There is often an inconstant albuminuria of no significance.

12. The electro-cardiograph findings which have a prognostic value are: (*a*) Changes in T wave in lead 2. (*b*) Occurrence of interference in auriculo-ventricular conduction. (*c*) Notching of the Q.R.S. complex. (*d*) Auricular fibrillation.

13. The signs of cardiac failure are also of prognostic significance.

14. The mortality of the disease is high, once it has passed out of the latent stage.

15. It is necessary to diagnose these cases in the latent stages so that treatment may be more successful.

16. The distinction between aortic regurgitation of syphilitic and of rheumatic origin is necessary on clinical grounds.

17. Haemostatic serum is useful in certain cases of aneurysm with pain.

My thanks are due to the honorary staff of the National Hospital for Diseases of the Heart, London, for permission to use their records, and particularly to Dr. Strickland Goodall for his kind advice and elucidation of several matters in the text.

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[1] Turnbull: *Quart. Journ. of Med.*, 1914. [2] Strickland Goodall and Russell Wells: BRITISH MEDICAL JOURNAL, August 11th, 1917, p. 182. [3] Willius and Barnes: Myocardial Infarction; an Electro-cardiographic Study. Mayo Clinic, Section on Cardiology, August, 1924.

THE EFFECT OF POSTURE ON CASES OF PNEUMOTHORAX.

BY

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WHEN a patient with pneumothorax moves from side to side or from the recumbent to the erect position the intrathoracic pressure is altered, and the intrathoracic viscera and any effusion that may be in the pneumothorax cavity are also moved.

Intrathoracic Pressure.

Dr. Lawson[1] pointed out that this pressure varies with posture in cases of artificial pneumothorax. The variation may be very considerable, and this should always be borne in mind when giving a refill. Some physicians give refills with the patient sitting in a chair, others with him lying flat on his back, and others with him lying completely or partially on one side. If we have records of previous refills it is usually possible to tell in what position they were given by putting a needle into the pneumothorax cavity and moving the patient until the usual pressure is found. If the patient lies on the pneumothorax side the weight of the viscera will render the intrathoracic pressure in the pneumothorax cavity higher than if he lies on the healthy side. In one of my cases the pressure was −4+2 with the patient lying on the left (pneumothorax) side, but −10−0 when he was lying on the right side. After a refill of 450 c.cm. of air the pressures were +1+3 and −5+2 respectively. In other words, when this patient was lying on the healthy side he could raise the pressure in his pneumothorax cavity as much by turning on to the treated side as by having a refill of 450 c.cm. It is possible, therefore, to use posture if we wish to stretch adhesions, for by making the patient lie on the healthy side a continual drag on the adherent areas would be produced. Of course posture will affect the

intrathoracic pressure more when the lung is free than in cases where it is bound to the chest wall by adhesions or adherent pleura. It will also have a greater effect if the mediastinum is freely movable.

Position of the Thoracic Viscera.

By making an *x*-ray examination of the patient in various positions it is possible to judge to what extent the mediastinum is movable and also to see exactly where the lung is held up by adhesions and where the visceral pleura is in contact with the chest wall but not actually

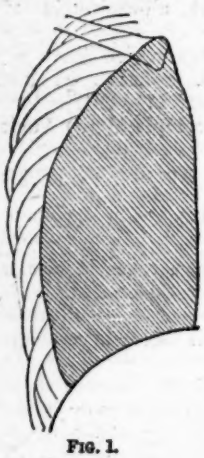

FIG. 1.

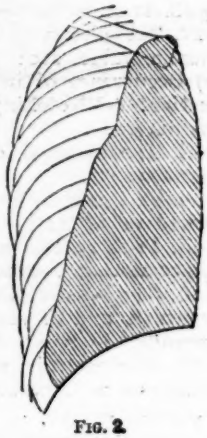

FIG. 2.

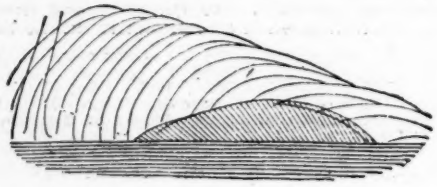

FIG. 3.

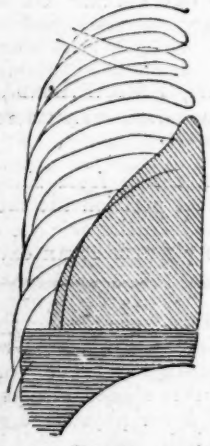

FIG. 4.

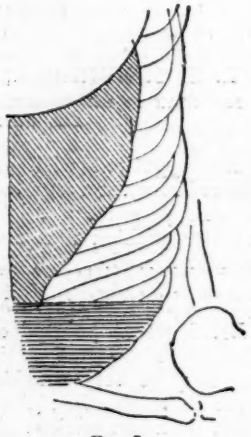

FIG. 5.

adherent. Fig. 1 shows a case of artificial pneumothorax with the patient in the recumbent position. Fig. 2 shows the same patient in the erect position, and it will be seen how great is the difference in the position and shape of the lung.

Effusion in the Pneumothorax Cavity.

Of course fluid is freely movable in these cases, and it can readily be shifted by making the patient lie on one side (Fig. 3), if it prevents a good *x*-ray examination of the diaphragm or base of the lung, as in Fig. 4; or if he is active and sufficiently well he may stand on his head, when the fluid will gravitate to the apex and a clear view of the base will be obtained by *x* rays (Fig. 5).

My thanks are due to Dr. Stanley Melville, who took the skiagrams from which these tracings are made.

REFERENCE.

[1] Lawson, J.: Notes on the Intrapleural Pressure in Artificial Pneumothorax, BRITISH MEDICAL JOURNAL, 1922, i, 309.

A CASE OF TUMOUR OF THE BRAIN WITHOUT SYMPTOMS.

BY

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THE case here recorded has a certain clinical interest and is of some importance from the medico-legal point of view.

An elderly male Egyptian was knocked down by a motor car whilst crossing the street, and was removed to hospital in a semi-conscious state.

On admission the pulse was 100, the pupils equal and reactive to light, there was no Babinski sign, and the deep reflexes of the legs were exaggerated. There was paresis of the left arm and spasticity of the other three limbs. The cerebro-spinal fluid was found to be of normal tension and was discoloured with blood.

The patient gradually got worse, and died five days after admission without regaining consciousness. His temperature gradually rose to 38.4° C. before death, and his respirations rose from 24 to 38 per minute.

On dissection a bruise was found in the temporal muscle above the right ear, and under this a linear fissure in the skull running forwards and downwards into the middle fossa and terminating in the right sphenoid bone. There was about 1 c.cm. of clotted blood between the dura mater and the bone in the region of the crack. The dura was thickened and adherent. The brain was intensely congested and the pia arachnoid looked blood-stained, although no actual extravasated blood could be observed. The brain was not damaged on the side of the injury, but on the opposite side there were two lacerations—one the size of a shilling on the left temporal lobe where it rested on the petrous temporal bone, the other about half the size towards the temporal pole adjacent to the small wing of the sphenoid. There were no other signs of violence, nor haemorrhage into the brain substance. On section, however, two tumours were found in the right hemisphere—one situated in the anterior part of the Sylvian fissure where the horizontal and ascending rami take origin, the other situated at the end of the sulcus temporalis superior in the gyrus angularis. Neither of these tumours could be seen on the surface, but on making serial horizontal sections the following relations could be ascertained.

A. The anterior tumour had no distinct boundaries, it took origin between the pia mater and the arachnoid, invaded the brain substance forwards into the frontal lobe and upwards into the pars triangularis, and reached the white matter of the middle temporal gyrus. The anterior extremity reached the roof of the anterior horn of the lateral ventricle. The grey and white matter of the island of Reil, the claustrum, and the external capsule were destroyed in their anterior half. The tumour touched the anterior extremity of the lenticular nucleus and destroyed the lateral part of the internal capsule at the level of the head of the caudate nucleus. Above the level of the basal ganglia there were several small cavities, one of which was 5 mm. in diameter.

B. The posterior tumour consisted of a well defined cheesy mass measuring 1.5 by 2 cm. and was enclosed in a capsule. It destroyed the grey matter of the angular gyrus and invaded the white matter as far as the forceps major.

On microscopical examination both tumours were found to be of syphilitic origin, invading the brain substance from the pia arachnoid. In and about the tumours the blood vessels showed intense infiltration with lymphocytes, and the brain tissue adjacent to the vessels was in a state of softening. The cavities mentioned above showed degeneration of the brain substance with a neuroglial wall and with a similar condition of the vessels around them.

From the clinical aspect the presence of such extensive invasion of the brain by tumours without apparent symptoms is rather a remarkable feature, and an effort was made to obtain the previous history of the victim. He was, unfortunately, an old man who lived by himself, and we could obtain no information about him except that he had been in a "debilitated" state for about three months, but used to look after himself without assistance and was able to lead an apparently normal life. We could not ascertain from his relatives or neighbours whether he had complained of any symptoms, and presumably he had not.

From the medico-legal aspect the case is important in that it shows that a person may be walking about leading an apparently normal life while suffering from an advanced disease of the brain. When an individual so suffering is the victim of an accident such as this person sustained the question of responsibility must arise, and it is at least an open question whether the central lesion did or did not play a part—first, in causing the accident, and secondly, in leading to a fatal issue after the accident.

We can readily understand that lesions of this extent might at any moment cause an oedema of the brain which might lead either to loss of consciousness or to loss of co-

ordination, and either cause the victim to fall under the car or prevent him from getting out of its way. After such an accident it might easily be believed that an injury to a brain already the seat of advanced disease was more likely to be fatal than would a similar injury in an ordinary brain.

A final point of some interest is the relative position of the site of injury and the position of the so-called contrecoup lesions. The blow struck the head just above the right ear, whereas the two contrecoup lacerations were found on the left temporal pole and on the lower surface of the temporal lobe. These are by no means exactly opposite the site of injury, and are the usual site for contrecoup injuries whatever the site of the original violence.

My thanks are due to Professor O'Farrel and Dr. Boulgakov for their help in the preparation of the case.

ZINC GLYCO-GELATIN:

*SOME OF ITS USES IN GENERAL PRACTICE.**

BY

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THE merits of zinc glyco-gelatin were first brought to the notice of the profession by Unna for its efficacy in the treatment of dry forms of eczema, but, as far as I am aware, this plastic amalgam has not yet received a place in the equipment of the general practitioner, and it is the contemplation of this anomaly in the usual custom and fashion of the profession that induces me to bring to your notice the result of my experience of its use, now extending over twenty years, in other conditions which are met with in everyday practice—such as arthritis, dermatitis, erysipelas, erythema nodosum and simplex, myositis, periostitis, phlebitis, and varix of the leg, synovitis, "tennis leg," minor thrombosis, contusions, and sprains of the joints of the limbs, to mention the chief.

The amalgam employed in these cases is composed of oxide of zinc 1 part, gelatin 2 parts, glycerin 3 parts, and water 4 parts, prepared and compounded by a skilled pharmacist. When once the principle of the rationale has been grasped the selection of cases becomes comparatively easy, but it should also be realized that, as so much of the after-success depends upon the care devoted to technique, the task should not be undertaken in a perfunctory fashion. By way of illustrating what these injunctions imply, take the condition of a leg (by far the more common part) requiring a dressing. The following outline of directions, which, in principle, apply to all cases, naturally falls under two headings—preparation and application.

Preparation.

1. If necessary, previously instruct the patient to remain in bed for such a time as is likely to allow oedema to subside to a minimum.
2. Set the process of melting the solid amalgam going.
3. Thoroughly sponge the surface extent with methylated or rectified spirit twice or thrice over, to remove fatty excretions and loose epithelium.
4. Dredge the surface well with a dusting powder composed of calomel one part and starch four parts, using the palm of the disengaged hand to rub it uniformly all over.
5. Select an open-wove bandage (texture used throughout) of an appropriate width, and cut it into a sufficient number of strands to encircle the leg from the ankle to the knee-joint, due provision being made (in the form of a "many tail" arrangement) for allowing each strand to overlap the other, by half of its width, and, at its junction in front, the ends to overlap one another by two inches, in the series of their implacement from below upwards.

Application.

As the paste, when spread, cools and sets quickly, it is advisable to apply the *immediate* part of the dressing in two sections—namely, lower, from the upper border of the ankle-joint to the commencement of the calf; and upper, from the junction of the calf to within half an inch of the knee-joint.

1. With a brush, as rapidly as possible, apply a coating of the paste over the lower section, but leaving the flexure of the ankle-joint free, by demarcating the lower boundary of the painted extent along the upper border of the joint, from a middle point in front, outwards and downwards, on each side, including both malleoli, to short of the plantar border of the heel, then continued posteriorly to meet at a point just above the insertion of the tendo Achillis.
2. Apply the strands in their "many tail" order over the painted extent, due tension the while being maintained by the hands between the ends so as to secure uniform and even apposition of the fabric to the surface.
3. Over the implaced strands run a single length of a continuous bandage, avoiding "reverses" here (which at no stage should ever be plied over the crest of the tibia); if uniformity cannot otherwise be secured, then cut the length, fix the free end down with a daub of the paste, and encircle anew, and thereafter firmly pass the hands, one on each side, over the bandaging, in a series of semicircular sweeps from below upwards.
4. Repeat 1, 2, and 3, on the upper section, which completes the application of the *immediate* part of the dressing.
5. Rapidly apply a second coating of the paste over the *whole* bandaged extent.
6. Over this run a second bandage, but applied in the opposite direction to the first, the hands being used as before; thereafter ("reverses" on either side being now permissible) run a third and a fourth bandage in alternate directions, the hands being used in the same way, which completes the affixation of the zinc glyco-gelatin dressing.
7. Finally, encompass the foot, from behind the toes, and the ankle with a bandage, in the usual fashion, which finishes the complement of the whole appliance.

While the surface should be unbreached and free from exudations, yet dry incrustations firmly adhering to the skin, which maceration with spirit has failed to detach, should offer no barrier to the choice of selection of cases. Except for the purpose of treatment, flexures of joints, which come into play, should not be included in the immediate dressing. In the case of the ankle-joint the same purpose is equally well served by the method of No. 7, which possesses the inestimable advantage over the orthodox instructions of permitting the bandage to be renewed as often as hygienic attention to the foot may demand, without impairing efficiency.

As a rule, first and second dressings should last from three to six months, and, on an average, third and subsequent dressings should remain serviceable from nine to ten months, or even longer. Fortified with this appliance, in about 95 per cent. of leg cases patients are enabled to walk about, while treatment is going on, in conditions of (*a*) subacute and chronic varix, immediately; (*b*) dermatitis, erysipelas, erythema nodosum, and periostitis, within a week; and (*c*) arthritis, myositis, phlebitis, synovitis, and minor thrombosis, within a fortnight—respectively after the affixation of the dressings. On a minimum enumeration of the records traceable, over seventy cases belonging to the varix category, and more than forty cases of the other classifications, have been treated during the past twenty years with unqualified benefit to the patients; and I venture to claim for this method of treatment, on the average of selected cases (in addition to its outstanding merit of enabling the patient to walk about, as aforementioned), a greater measure of all-round efficiency, in the way of (1) affording the comfort of relief from pain, (2) preventing the development of complications in the affected areas, and (3) effecting a cure, or expediting the recovery, or promoting the betterment, of the morbid conditions, than could have been hitherto, or can be at present, obtained from any of the other forms of treatment known to me in the course of over forty years' experience of general practice.

A précis of one classic case may suffice to convey some idea of the changes which this appliance is capable of effecting in a morbid condition which the practitioner has hitherto regarded with a *non possumus* attitude to benefit from any form of treatment whatsoever.

Mrs. M., aged 50 years, figure short, rotund, and expansive, weight 17 st., had for twelve years been afflicted with a varicose ulcer on each leg, deeply eroded, and of diameter 3½ and 3 in. respectively. After months of ordinary treatment the ulcers healed. The case was selected—with misgivings—for zinc gelatin treatment.

Before treatment the girth of the legs, at the middle of extent of lower section, measured 12 and 11½ in. respectively; the structures were thickened and indurated, deeply brawny and tender, and the outline of the venous main and anastomotic

* Abstract of a paper read before the Eastbourne Medical Society.

branches everywhere undefinable on the inner surface of the lower section.

After treatment the girth of legs, at same mesial, measured 9¼ and 9 in. respectively; the structures were soft and pliant, colour more normal and no longer tender, and outline of the same venous system easily delineated, and, with the exception of a few scattered indurated valvular pouches, the lumen of the vessels appeared to be more or less patent throughout the lower section of both legs; while over the sites of former ulceration extensions of vascular branches are plainly discernible injecting the waxy white cicatricial coverings with fine arterioles and network of venules from around their marginal borders.

These, then, comprise the salient features of the comparative changes which had been effected, in this instance, by means of a renewal of the dressings, on an average of once in ten months, for close on seven years, when the dressings were tentatively discarded in favour of ordinary roller bandaging support, which the patient continuously wore, in her household work, during the remaining thirteen years of her life, without any threat of recurrent ulceration or sign of varicose stagnation in the interval.

I think we have ample evidence here suggestive of the appliance being no ordinary implement of a mechanical contrivance, and that the amalgam is potential of some therapeutical virtue the unusual results in this instance would seem to imply. And what has been accomplished in this instance is but a replica, of outstanding dimensions, of the imprimatur of restorative benefactions conferred upon the recipients in each of the other sixty-nine cases of more or less chronic varix. And what is true of chronic cases equally applies to those of the acute and subacute classifications; and I know of no other form of treatment which gives such speedy relief to the agony of the victim of "tennis leg" as the envelopment of the limb in a glycogelatin dressing.

Whatever may be the explanation of its rationale of action, if it were only for its *par excellence* efficiency in chronic varix and acute phlebitis of the leg (whereas in the former it stands alone, and in the latter it has no compeer, as far as known, in present-day therapy) the zinc glycogelatin appliance should merit an abiding place in the armamentarium of every well equipped general practitioner.

A NOTE ON TWO CASES OF A FOREIGN BODY IN THE URINARY BLADDER.

BY

HUGH LETT, C.B.E., F.R.C.S.,

SURGEON TO THE LONDON HOSPITAL.

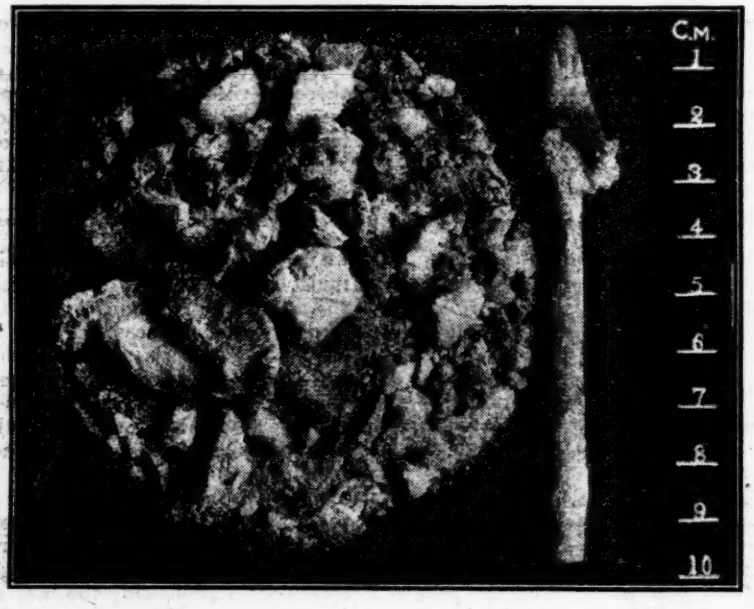
THE two cases here recorded are of interest as they illustrate some of the complications which may result from the presence of a foreign body in the bladder.

CASE I.—*Perforation of Bladder Wall: Haematuria: Perivesical Abscess.*

The patient, a girl aged 19, was admitted to the London Hospital under Dr. Cecil Wall, who kindly referred her to me. She stated that she was quite well and free from symptoms until five days previously, when she noticed that the urine was deeply stained with blood. The haematuria persisted until her admission to hospital. She also complained of pain and tenderness in the left iliac fossa, and slight pain on micturition in the hypogastrium and urethra. She said that the frequency of micturition was not increased.

For the first two nights after admission her temperature was raised to 99.2° and 100°, but subsequently became normal.

On abdominal examination a hard, tender fixed lump was felt in the left iliac fossa immediately above the inner half of Poupart's ligament. A skiagram showed a rod-shaped body lying transversely in the bladder, and projecting beyond the brim of the true pelvis on the left side. Cystoscopy confirmed the skiagram, and the foreign body was recognized as a penholder, painted with blue and red stripes, and encrusted with phosphates. There was oedematous cystitis on either side where it was in contact with the bladder wall. The urine was deeply stained with blood.



Suprapubic cystotomy was performed and the penholder removed. It was 13 cm. long, made of wood, and was firmly fixed. On the left side it had perforated the bladder wall, and its point extended into the indurated swelling above Poupart's ligament. The swelling was incised, and a small amount of pus escaped. The bladder and abscess were drained. The wound healed rapidly, and the patient passed all her urine naturally on the tenth day after operation.

CASE II.—*Large Vesical Calculus: Incontinence.*

The patient, a single woman, aged 59, was brought to the cystoscopy department of the London Hospital on June 27th, 1924, complaining of incontinence of urine. She had been perfectly well until June, 1923, when she found that she could not control her bladder, and had great frequency of micturition. She wetted her bed at night and her clothes by day. This gradually became worse, until the urine dripped away continuously. She was given a portable urinal, but it was not satisfactory, so that she seldom went outside the house. During the last six months she had lost a great deal of weight and strength, and had suffered considerably from thirst and a dry mouth. The bowels were constipated, with occasional attacks of diarrhoea. Her urine had been thick and offensive for some time, but there had been no haematuria.

The patient was a thin, wasted, rather excitable woman. She was somewhat unstable mentally, for she had unaccountable fits of giggling, and was very vague as to the history of her illness. Her friends stated that she had "always been a bit queer." The tongue was dry and furred.

Abdominal examination revealed a round, hard mass immediately above the pubes. This mass was also felt through the anterior wall of the rectum. Examination of the external genitals showed great hypertrophy of the labia minora. The urine was alkaline and extremely offensive; it contained a thick white deposit of pus and phosphates, and one-third volume of albumin. Clinical examination was otherwise negative. The systolic blood pressure was 104 mm. of mercury, the diastolic 70 mm.

Skiagrams of the pelvis showed a large calculus in the region of the bladder, with a long narrow shadow of greater density running through it transversely.

Operation.

On July 1st, 1924, suprapubic cystotomy was performed. The bladder was adherent to the wall of the pelvis on either side and anteriorly to the back of the pubes, while superiorly the peritoneum was stripped off with great difficulty. The bladder was entirely occupied by a phosphatic calculus surrounding the foreign body. The stone crumbled under the fingers, and was removed piecemeal. The foreign body was wedged firmly across the bladder, and could not be removed until the bladder incision had been extended laterally to the right.

On examination of the empty bladder a pouch was found on either lateral wall, corresponding to the extremities of the foreign body. Two drainage tubes were placed in the bladder, one for irrigation and the other for drainage, and the bladder wall was closed round them with catgut. A glove drain was placed in the cave of Retzius.

The accompanying figure shows the foreign body and the fragments of the stone. The foreign body proved to be an ivory penholder, 9.6 cm. long and 0.55 cm. in diameter. The fragments of stone weighed 44.1 grams and the foreign body 6 grams, so that the total weight was rather more than 1¾ ounces. The stone was composed of calcium phosphate with a trace of oxalate.

Convalescence was slow but uneventful, and the patient was finally discharged from hospital on August 12th, six weeks after the operation, with the wound healed.

On September 26th she came back with a history of occasional leakage through the suprapubic wound. The wound, however, appeared to be soundly healed, and she was discharged after six days.

On October 24th she was seen again in the cystoscopy department, feeling and looking very well. She could walk about well, and had perfect control over her bladder. She was able to go all night without passing urine, and the average interval between the acts of micturition during the day was four hours. The bladder capacity was 6 ounces.

The usual complication of a foreign body in the bladder is, of course, a deposition of phosphates which gradually forms a calculus with the foreign body as its nucleus; but in the first case the foreign body gave rise to a comparatively rare complication—namely, the perforation of the bladder wall with fairly profuse haematuria and the formation of a perivesical abscess.

In the second case the most striking symptom was the incontinence, for which the patient had to wear a urinal. Further points of interest, apart from the size of the calculus, were the adhesion of the bladder to the pelvic wall and the impaction of the foreign body in the bladder, so that it could not be removed until a very large opening had been made.

That the wound should have taken six weeks to heal soundly was not unexpected in view of the foul state of the urine, the severity of the inflammation of the mucous membrane, and the size of the bladder incision.

The remarkable power of recovery latent in the bladder wall is illustrated by the fact that the patient could easily retain 6 ounces of fluid and empty the bladder completely some fourteen weeks after the wound had healed, although she had previously been incontinent for a year.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CELLULITIS OF THE SCALP TREATED BY INTRAVENOUS COLLOIDAL SILVER.

I THINK that the following case is of interest as it would appear to indicate a simple treatment for a serious condition.

On November 29th, 1926, a woman, aged 62, was admitted to Andover War Memorial Hospital suffering from a scalp wound in the occipital region (about 1½ in. long) and a mild degree of concussion. For the next few days she ran a high evening temperature and looked very ill. She complained only of severe headache and had all the appearances of suffering from a toxaemia against which she was incapable of fighting. A thorough general examination failed to reveal any definite cause for her condition. The only fact noted was that the wound, though not discharging, was gaping and showing no signs of healing.

On December 6th the diagnosis of the patient's condition was made obvious by the appearance of an isolated patch of cellulitis over the forehead. She looked so ill as to appear almost moribund. On the following day the affected area had extended, although the inflammation seemed, if anything, less intense.

An intravenous injection of 10 c.cm. of collosol argentum was given. There was a striking and immediate improvement in the patient's condition, and two days later the cellulitis had almost disappeared, the tongue was clean, and there was no headache. The edges of the wound, which was now discharging slightly, looked healthy, and had approximated. The treatment was repeated, and the patient made an uneventful recovery, being discharged well on December 21st.

So far as I am aware, colloidal silver has not been previously used in a similar case.

Andover, Hants. R. S. WEIR, M.B., Ch.B.

POTASSIUM SILVER IODIDE IN THE TREATMENT OF GONORRHOEA.

THE double iodide of potassium and silver ($KAgI_2$) is a crystalline substance readily soluble in a small quantity of water. On dilution the solution begins to precipitate silver iodide, but the precipitation is not complete until a fairly high dilution is reached.[1] The precipitated silver iodide is in a very finely divided condition and a part of it is in a colloid state. It has a tendency to creep up and adhere tenaciously to the sides of a test tube, and would presumably creep into the crypts and ducts of the urethra and adhere to them and to the gonococci found there. The unprecipitated portion is still in the form of a double salt and in a state of molecular dispersion. In this condition it would presumably diffuse through the walls of the cells, and on being further diluted by the tissue fluids would precipitate more silver iodide inside the tissues. The decomposition of the double salt on dilution tends to be reversed by the presence of excess of potassium iodide.

The potassium silver iodide was prepared as described by Mellor (*loc. cit.*). One part by weight of crystallized potassium silver iodide and four parts of potassium iodide were intimately mixed and dissolved in water as required in the strengths of 0.5 gram, 1.0 gram, and 1.5 grams, in 20 c.cm. in each case. Each of these dilutions contains a fine suspension of silver iodide, some of it in a colloidal state, and a true solution of the double salt.

[1] Mellor, *Inorganic and Theoretical Chemistry*, vol. iii, p. 432.

Method of Treatment.

Of the above solution 20 c.cm. is placed in a glass syringe. The tip of the syringe is introduced into the meatus and the solution is injected slowly and steadily, with the fingers grasping the glans to prevent escape of the fluid. At the same time the patient is asked to keep his nostrils closed and breathe freely through the mouth. After injection a soft bandage is applied over the glans tight enough to prevent the injected fluid from coming out. The bandage can be removed after fifteen to thirty minutes. The injection distends the urethra fully, opening out the crypts and recesses, and a portion perhaps enters the bladder. The solution seems to reach the prostate and seminal vesicles, as on massaging the prostate and vesicles two or three days after the injection the expressed fluid is seen to contain some silver iodide. In acute cases the anterior urethra is washed out twice, using 10 c.cm. of the first strength each time, before the injection of 20 c.cm. is given, and the bandage applied. In chronic posterior urethritis an injection of the second strength is given after urination, with prostatic massage, and later in the treatment the third strength is used. The treatment has the advantage that the injections need only be given twice or thrice a week, as the silver iodide persists in the urethra and continues to exercise its antiseptic action.

Results.

Under this treatment the discharge decreases very rapidly and after about six injections disappears, though in many cases on prostatic massage a few extra-cellular diplococci may be detected microscopically in a smear. After about twelve to fifteen injections gonococci completely disappear, and even after provocative treatment and prostatic massage a smear shows their absence. Cases which come with a stricture do not readily respond unless the stricture is dilated prior to the injection. Cases of prostatitis, vesiculitis, and cystitis respond readily. A case of gonorrhoea with acute retention of urine was treated by hot hip baths with repeated catheterization and injections. The patient recovered rapidly.

I wish to thank Major Clive Newcomb, I.M.S., chemical examiner to the Government of Madras, for his guidance and help, and Lieut.-Colonel R. B. B. Foster, I.M.S., superintendent of the Government Royapuram Medical School, Madras, for permission to publish this note. I am also indebted to my assistants, Mr. N. Raghavayya, assistant lecturer in chemistry, Royapuram Medical School, Madras, and Dr. C. R. Krishna Pillay, for their active co-operation with me.

[Dr. Naidu sends notes of ten cases: in all of them gonococci were detected microscopically in smears, the injections were well borne, and none of the patients complained of any considerable pain.]

Madras. S. RAJAGOPAL NAIDU, B.A., M.B., B.S.

GASTRECTOMY FOR SARCOMA OF THE STOMACH.

SARCOMA of the stomach being a fairly rare condition, the following case may be of interest.

A man, aged 27, was admitted under my care to the Victoria Hospital, Keighley, on December 12th, 1926, with a history of indigestion extending over three months. On admission he was much emaciated—the emaciation, he stated, had become very apparent during the previous four weeks. He had severe pain almost immediately after food (even liquids), and there was frequent vomiting. On examination the abdomen was much retracted and a large sausage-shaped tumour could be readily seen and palpated in the epigastrium. The tumour was fairly movable and very tender, even on the slightest pressure.

On December 17th I performed gastrectomy. The tumour was found to involve practically the whole of the stomach, there being only a very small portion of the cardiac end apparently free from disease, which made the anastomosis between the resected end of the stomach and the jejunum rather difficult. The tumour did not involve the duodenum, but there were many enlarged glands in the gastro-colic and gastro-hepatic omenta. One hard nodule was also detected in the liver.

After operation the usual treatment to counteract shock, etc., was carefully carried out, and from the third day after operation

the patient was able to take fluids and meat jellies freely by the mouth, and expressed himself as feeling very comfortable. On the tenth day, however, he died suddenly from heart failure.

The stomach was sent for pathological examination to Mr. Alfred Gough of Leeds, who reported as follows: "The tumour forms a large cake about an inch thick. It lies essentially in the muscular coat. The mucosa extends over it for some distance, gradually thinning out, and giving place to an ulcerated surface covered with granulation tissue. The tumour is composed of spindle cells rather loosely arranged with a good deal of intercellular substance. It is a myxosarcoma."

Boyd, in his book on *Surgical Pathology* (p. 293), under the heading of Rare Conditions of Stomach and Duodenum, says: "Sarcoma of the stomach is of equal frequency in men and women. It is usually of the round-celled variety, but may be spindle-celled. It starts in the submucous coat, and may attain an enormous size, bulging into the cavity or growing outwards to form a mass outside the stomach."

H. STEWART BRANDER, M.D., Ch.B.,
Honorary Surgeon, Victoria Hospital, Keighley.

Reports of Societies.

THE ETIOLOGY OF EPILEPSY.

AT the meeting of the Section of Neurology of the Royal Society of Medicine on January 13th, with Sir J. PURVES-STEWART in the chair, a discussion on epilepsy was opened by Dr. W. ALDREN TURNER.

Dr. Aldren Turner said that the essential feature of epilepsy was a disturbance of consciousness, occasionally sudden, swift, and brief, which might or might not be accompanied by spasm or convulsions. Certain psychical phenomena might be associated, such as dream states and visual hallucinations. There had been a tendency during recent years to broaden the basis of epilepsy mainly from the psychical side, and to regard as epileptic certain states of disturbed consciousness of longer duration, including somnambulism and stupor. It was now generally accepted that there was no single clinical entity to which the name "epilepsy" might be applied. Three special groups were to be distinguished: (1) organic; (2) toxic, infective, or metabolic; (3) psychogenic; other varieties might be designated "epilepsy of unknown origin." The suggestion had been made that the phenomena of epilepsy might be explained by the circulation of toxic substances in the blood, arising, for example, from defective carbohydrate metabolism in the small intestine. There could be little doubt that some cases of epilepsy at the commencement of the illness were attributable to toxic, infective, or metabolic agencies; these included, for example, epilepsy following any of the exanthemata, also a form of epilepsy associated with intestinal stasis and the toxaemia resulting therefrom. A quite unjustified degree of importance had been attached to the relation of epilepsy to glandular disturbance. With regard to the metabolic group of epilepsies, there was considerable clinical evidence in favour of the existence of such a group, but so far convincing biochemical evidence was lacking. Emotional causes had come to be regarded as of great importance, but it was only of recent years that it had been revealed how emotion acted in mental illness. A group of epileptic reactions had been discovered which would appear to be attributable to emotional influences. It was difficult to distinguish between the hysterical and the epileptic type of fit, and certain attacks could not be classified as either. According to some workers, a study of the types of epileptic attack had demonstrated that some disturbance of the emotional state and some reaction against expressing the emotion had been found in every instance, but it was doubtful whether an intensified emotion was sufficient to give rise to that dramatic crisis, the major epileptic fit. The whole subject of the epileptic fit as an expression of an emotional state involving a disturbance of consciousness required fuller examination. It seemed that in all forms of epilepsy an additional factor had to be detected; it would most probably be found in a constitutional defect conveyed through inheritance or acquired later. Dr. Turner had investigated the temperamental qualities of a large number of epileptics; only a few were of the absent-minded and day-dreaming type, while the self-satisfied and self-opinionated also formed only a small group. The outstanding feature of the epileptic temperament was nervousness and anxiety; a great part seemed to be played by fear and apprehension in the development of their mental outlook. There had been a tendency of recent years to under-estimate the importance of inheritance, but in this group of illnesses it was impossible to survey the family history of any large number of epileptics without obtaining direct evidence of epilepsy in the family in quite a substantial proportion of cases. His own investigations, covering quite a large number of cases, showed an hereditary history in 33 per cent.

Dr. GEORGE RIDDOCH said that at the London Hospital during the past two years a number of workers had approached this problem from the clinical and biochemical sides. Most of the questions which they set out to elucidate were still unsolved; notably, the etiology of epilepsy, and the mechanism of the production of the seizure. Very little was known about etiology, and it was difficult to assess the hereditary factor. Family histories were hard to obtain, especially in patients of the hospital class, but at least one-third of the cases of epilepsy studied revealed a definite family history. The old question of insanity and its bearing upon epilepsy had been taken up, and it appeared that mental disorders of that class were no more common among epileptics than among non-epileptics. It was found that the epileptics who had a significant family history were the first-born in a disproportionate number of cases, a fact which might point to trauma at birth, resulting in brain lesion. One investigation made at the London Hospital concerned the effect of starvation upon epilepsy. In a number of epileptics it was found unquestionably that starvation lasting for a fortnight, with water only, had a beneficial effect, the fits either ceasing altogether from the beginning of the period or diminishing in frequency; the good effect continued after the starvation period was over. He did not put this forward as a therapeutic method, but only as an investigation. In connexion with the study of the mechanism of the production of seizures, he related some experiments on cats and rabbits in which characteristic convulsions after the injection of certain substances had been investigated. It was also found with these animals that bromide given in increasing doses and increasing concentration gradually diminished the severity of the seizures and finally eliminated them entirely.

Dr. W. RUSSELL BRAIN described the results of biochemical investigations in epilepsy also made at the London Hospital. There was no confirmation of the suggestion that epilepsy was caused by a reduction in the calcium-iron concentration in the body fluids. Hitherto no metabolic abnormality in epilepsy had been conclusively proved or generally accepted, but a good deal of work at the London Hospital had been directed to the study of the blood cholesterol. It had been stated that epileptic women were most likely to have fits at that period in the menstrual cycle when the blood cholesterol was known to be at its minimum, and two French observers had stated that they had found in epilepsy a fall in the level of the blood cholesterol during the attacks, though they believed this to be the result and not the cause of the attacks. It was therefore resolved to investigate the behaviour of the blood cholesterol in epilepsy, and the level of the blood cholesterol was thereupon determined in a large number of epileptics. From figures which he exhibited, comprising some thirty or forty normal persons of each sex, and about an equal number of epileptics, it appeared that normal individuals had a higher blood cholesterol content than the epileptics. It was also found that in epileptics from whom blood had been taken within twenty-four hours of the attack the blood cholesterol, both in the whole blood and in the plasma, was considerably lower than in the case of epileptics from whom blood was taken more than twenty-four hours after the attack; in the latter the figures were much nearer to those exhibited by the normals. Dr. Brain concluded that there was a relation between a low level of the blood cholesterol and an epileptic attack. In a few instances which it was possible to observe continuously the attack was found also to be preceded by a prolonged fall in the level of the blood cholesterol; therefore the

reduction in the blood cholesterol in epileptics was not the result of the attack. What the exact relation was between these phenomena they did not know, but the investigation was continuing. He expressed indebtedness to Dr. R. Langdon-Down for much help in connexion with this work. Replying to Dr. JAMES TAYLOR, who said that it was a well known fact that many epileptic women during pregnancy had no attacks, and who asked whether the cholesterol was less or more abundant during pregnancy, Dr. RUSSELL BRAIN said that during pregnancy it was generally regarded as above normal.

Dr. KINNIER WILSON referred to his recent Harveian Lecture (BRITISH MEDICAL JOURNAL, July 3rd, 1926, p. 1), and said that in a paper to be published shortly in the same journal he was dealing with the problems of epilepsy so far as they concerned life assurance; he therefore confined himself to some clinical and physiological points. Epilepsy was certainly not a disease entity but only a symptom; recurrent fits were symptomatic of many different morbid processes, and there might easily be more than one cause of idiopathic epileptic attacks. Epileptic symptoms were not themselves always a sign of disease. Experimental convulsions could be readily brought about in animals which were anatomically and physiologically normal. In many fits, as every clinician knew, movements occurred which were quite ordinary, such as champing of the jaws, smacking the lips, spitting, and clutching. Most of them had seen cases in which not more than one or two epileptic attacks had ever occurred, and to assume that these were due to disease was most questionable. The attack was physiologically only the setting free or loosening of a discharge of accumulated neural energy. Any neural mechanism at any physiological level might be epileptogenous. The crux of the problem concerned the circumstances in which accumulated neural energy was discharged. They did not know what decontrol meant physiologically, nor whether the constellations of neural cells discharged spontaneously or because they were touched by equally unknown effluents. But it was possible to unify to some extent their conceptions of the varieties of epileptic attacks on the supposition that they were due to accumulated static energy manifesting itself in a dynamic form, whatever the structural or anatomical site.

Dr. T. GRAINGER STEWART remarked that they had all, in their practices, seen certain cases which fell into definite groups. There were cases, for instance, in which the association of the attack with certain physical changes was a constant feature. In trying to discover the etiology of epilepsy, he thought it was important to consider epilepsy, not as a disease, but as a manifestation of something abnormal, and to collate certain cases in which similar clinical features and physical changes could be demonstrated throughout the series. Such a group of cases might then form the subject of united investigation. He described one of three similar cases which he had seen and which seemed to belong to a definite group. The case was that of a school teacher who had been exposed to air raids, which possibly might account for a psychical factor. Her family always knew when an attack was pending because of her offensive perspiration. After the development of the attack, instead of being a fresh-complexioned, comely woman, her skin became greasy and blotchy. Her pulse also at these times was abnormally slow, although previous to the development of the attack it was quite normal. He had seen two other cases in which the offensive perspiration, the slow pulse, and the change in the condition of the skin had been associated with epilepsy. Why this occurred, and what was its cause, he did not know, but after treatment with belladonna they made a complete recovery. The longest term for which it was necessary to treat them was six weeks. He could not explain why the belladonna had this effect, but believed that such a group of cases might advantageously be studied and some definite advance be made.

Dr. G. A. SUTHERLAND said that his own problem, like that of others, had been the difficulty of recognizing and diagnosing cases as being really due to epilepsy, and he was afraid he had blundered in classifying as "petit mal" cases which were not due to that condition at all. One matter specially deserved attention—namely, the condition of the circulation, and in particular cerebral anaemia. Gowers and Clifford Allbutt had laid very great stress on the fact in connexion with epilepsy that there were no changes in the circulation. The cerebral attacks in epilepsy were supposed to be due to a sudden "explosion" in the brain cells—that was as good a pathology as any. In circulatory attacks, which were liable to be confused with epilepsy, the heart might be organically sound or it might be diseased, but there was not necessarily any evidence of disease in the patient in the intervals between attacks. Again, just as in epilepsy itself, so in these circulatory conditions, the attacks were of two kinds, one mild, and evidenced by fainting, and the other severe, leading to convulsive movements; both of these were due to cerebral anaemia—it was simply a question of degree. The changes to which he referred might take one of two forms—either an extreme tachycardia or an extreme brachycardia. In the latter condition the attacks were due to the standstill of the ventricle. Mackenzie had said that if the ventricle of the heart remained still for a period of ten seconds cerebral symptoms would predominate; these symptoms might take the form of syncope or they might go on to a form of severe convulsion with stertorous breathing. The other condition was not so well known. Tachycardia took the two forms of paroxysmal tachycardia and, sometimes, auricular flutter. The attack of paroxysmal tachycardia started suddenly, so that the similarity to an epileptic fit was very much increased thereby. This was the type of case in which the diagnosis of petit mal or epilepsy might easily be made. He thought it would be well to look into the question of the circulation during the period of the fits. The heart should be carefully examined to see whether there were any changes such as those to which he had alluded. By paying close attention to the cardiac conditions during fits, a class of fits might be found of which little notice had hitherto been taken, and a wrong diagnosis might be prevented.

Dr. ALDREN TURNER, replying, thought that the arrest of the circulation mentioned by Dr. Sutherland was more probably a consequence of the seizure than its cause. As for the biochemical side of the investigations, he could not satisfy himself that any light on the subject was being obtained from that study. He felt great difficulty also, with regard to the animal experiments brought forward by Dr. Riddoch, in admitting that it was useful to compare the condition in epilepsy with the convulsions induced in animals by injections, and asked whether the experimenter had ever observed on any occasion in these animals recurring attacks of petit mal. Although the major epileptic fits were the more dramatic, petit mal was the outstanding criterion of epilepsy to the physician. Unless Dr. Riddoch had seen recurring seizures of petit mal following these injections, the speaker felt that these animal experiments were of very little value in the study of epilepsy as commonly understood.

SURGERY OF THE COMMON BILE DUCT.

AT a meeting of the Liverpool Medical Institution on December 16th, 1926, Professor R. E. KELLY read a paper entitled "Some observations on the surgery of the common bile duct."

Professor Kelly said that his paper was based on the records of 50 cases in which the common bile duct had been explored; these cases brought to light many interesting conditions. They showed that the common duct might be packed with stones without jaundice, and even without pain; that stones might be found in the common duct together with an enlarged gall bladder; that malignant disease might be associated with attacks of pain and a variation in the depth of the jaundice; that stones might occur with deepening jaundice and no pain; and that malignant disease and stones might be associated. Professor Kelly thought that mere palpation of the common duct was insufficient to give accurate information of the condition of the duct or its contents. He suggested that every dilated common duct should be explored with the finger, probe, or catheter, and that failure to reach the duodenum by these means should be followed by a transduodenal choledochotomy. He discussed the difficulty in

distinguishing malignant disease from impacted stones in the ampulla of Vater. He thought that malignant disease in this situation was very grave, and that reported cures were sometimes due to mistaken diagnoses. With regard to the details of the operation, he had used all the incisions recommended, and for particular reasons liked them all. He thought, however, that in the very obese, with a wide costal angle, the complete transverse incision gave particularly good access and a strong scar. On many occasions he had used the double catheter—one passed upwards into the hepatic duct, and the other down into the duodenum, facilitating the supply of liquid nourishment.

Vital Capacity in Heart Disease.

Dr. WALLACE JONES gave an account of investigations into the vital capacity in heart disease. A simple water spirometer was used, and the readings were expressed as percentages of the standard normal vital capacity calculated by means of West's formula. Fifty normal men and fifty normal women were examined to see how closely the actual vital capacity corresponded with the calculated vital capacity. The result showed that though marked individual variation occurred, the average figure was very close to the calculated normal. In organic cardiac disease there was a marked fall in the reading, the average being between 50 and 60 per cent. of the normal figure. The vital capacity was lowest in the mitral stenosis group, especially when associated with auricular fibrillation. In functional cardiac disease the average reading was 85 per cent.—a very high figure in view of the marked dyspnoea which was generally associated with this condition. A group of cardiac cases was also kept under observation for a considerable time, and though the vital capacity improved with increase in the cardiac reserve power, the readings only followed slowly the changes in the heart condition.

JAMES MACKENZIE INSTITUTE.

AT the James Mackenzie Institute for Clinical Research, St. Andrews, on December 21st, 1926, Dr. WALTER ELLIOT, M.P., gave an address on clinical research in its relation to the public health services. He expressed first his conviction of the valuable results which must accrue from the meeting of public health administrators and general practitioners, and laid it down as a fundamental rule that every respect must be paid to the opinions of those in touch with the living being; the "clinician of the farms" had knowledge with regard to stock unpossessed by many professors. The fact that research figured in the agenda of the Imperial Conference last autumn for the first time in history marked a distinct stage in the attitude of the administration towards it. But there was a danger that too much reliance was being placed upon the word "research," and that anyone getting into difficulties had only to pronounce the magic word to have his difficulties overcome. There was also the danger of clinical research coming to be looked upon as something apart from the practice of medicine, whereas it should grow and flower out of the daily work of practitioners. This required observation, intuition, imagination, just as much in the clinician in his daily round as in the laboratory worker.

In the relationship of clinical research to the public health services there was a danger that the turning on of the enormous machine of administration to the work of people who were "on their own" and unco-ordinated might do more harm than good. One way to avoid this danger was to have a proper conception of the work and difficulties of research, both in the minds of the administrator and of the clinician. The administrative worker must come into contact with the growing process which research represented.

Dr. Elliot summarized his conclusions thus: (1) Public health work would increasingly concern itself with research. (2) Control, especially superimposed control, would of necessity fail, and opportunities for work were the most that organizations could hope to offer. (3) The independence of scientific institutions ought to be jealously guarded so as to provide the necessary check on the rapidly increasing undertakings of State research.

Reviews.

PHYSIOLOGY FOR THE MEDICAL PRACTITIONER.

PROFESSOR J. J. R. MACLEOD of Toronto is to be congratulated on the success of his book, a fifth edition of which is called for since its first appearance in 1918. Although *Physiology and Biochemistry in Modern Medicine*[1] is as admirable as ever, both in its material and its mode of presentation, the serious question arises whether it is as good a book in its present form as, say, the first and second editions. We are of opinion that Professor Macleod has made a mistake in expanding his excellent and original book, designed as it was (to quote from the preface to the first edition) to review "those portions of physiology and biochemistry which experience has shown to be of special value to the clinical investigator. The work is not intended to be a substitute, either for the regular textbooks in physiology or for those in functional pathology. It is supplementary to such volumes." There was a very real need for a book which would interest men whose work lay on the clinical side—a book which would bring before these workers, clearly and definitely, the salient facts of physiology. And now at the behest of "various teachers of physiology" Professor Macleod has been inveigled into changing his outlook, into, indeed, that time-wasting sport of trying to kill two birds with one stone. In the preface to the new edition he states that his "manual has been expanded in the present edition in order that it may also be used as a textbook of physiology for students of medicine." There is enough of the excellent original to the fore to prevent the book from falling between two stools, but, if the aim is to be achieved of making this compendium serve both as a textbook of physiology and a scientific bedside guide in the study of disease, the next edition will require to be expanded still more in order that the pure physiology aspect may be adequately treated. Many of the present stimulating sections, sufficient though they be for the worker who has already studied physiology in one of the standard works, will require drastic alteration and extension if they are to be the sole sources of information, and sundry gaps will require filling. We hope and believe that, for instance, sleep, phonation, and reproduction each and all are still part and parcel of physiology.

Although we regret the alteration in the plan of the book, and believe that Professor Macleod's better judgement will endorse this regret, it goes without saying that the volume is well up to its old standard of interest and information and that it will prove invaluable to the clinician who wants a good working knowledge of modern physiology. The sections on circulation, respiration, and metabolism—except the chapter on dietetics, which is really inadequate—are excellent and stimulating surveys of their respective fields.

MENTAL HYGIENE.

DRS. HENRI BOUYER and MARTIN-SISTERON have written a volume entitled *L'Hygiène Mentale et Nerveuse Individuelle*.[2] Though many works have been devoted to the subject of the prevention of diseases of the body, the medical profession has concerned itself but little with the preservation of the mental health of the community. Twenty years ago Sir Thomas Clouston was responsible for a book in which he endeavoured to utilize our knowledge of the mind and nervous system and their disorders, with a view to developing a science of mental hygiene. Since then the importance of this subject has been increasingly recognized, and there is now a growing body of literature dealing with the application of psychiatric knowledge to the problem of the prevention of mental disorder. The book with which this notice is concerned deals clearly and adequately with the subject, and the student and practitioner will find it useful as a textbook of mental hygiene,

[1] *Physiology and Biochemistry in Modern Medicine.* By J. J. R. Macleod, M.B., LL.D.Aberd., D.Sc.Tor., F.R.S., assisted by Roy G. Pearce, A. C. Redfield, N. B. Taylor, J. M. D. Olmsted, and by others. Fifth edition. London: H. Kimpton. 1926. (Roy. 8vo, pp. xxxii + 1054; 291 figures. 42s. net.)

[2] *L'Hygiène Mentale et Nerveuse Individuelle.* Par Dr. Henri Bouyer et Dr. Martin-Sisteron. Préface de M. le Dr. Henri Claude. Paris: A. Maloine. 1926. (5¼ × 7¼, pp. iv + 352, 20 fr.)

for the profession is still in need of further information on this matter. As Professor CLAUDE observes in his preface to this volume, "What examiner in the faculties of medicine dare set a question on mental hygiene?" He insists, furthermore, on the necessity of interesting the medical profession, and all those who believe in the progress of the social organization, in a subject which will one day be regarded as of primary significance. The considerable incidence of mental disorder in the community certainly makes it desirable that no efforts should be spared to bring about its diminution.

ATLASES OF HUMAN ANATOMY.

IN *Baillière's Synthetic Anatomy*,[3] by Dr. J. E. CHEESMAN, we have an atlas quite different from those to which we are accustomed. Instead of a series of separate figures drawn to different scales and reproduced on separate pages, Dr. Cheesman has provided a series of diagrams representing the anatomical arrangements of a part as they may be seen, so to speak, in serial longitudinal sections, all drawn to a uniform scale on transparent sheets, capable of being superimposed on each other. In other words, the student can study the anatomy of a part in layers, lifting up or laying down one sheet after another. Further, by looking through the superimposed sheets he can, within limits, study at one and the same time several layers. The figures are necessarily somewhat diagrammatic, or, as Dr. Cheesman prefers to describe them, conventional; for the structures in the various layers have to be regarded as running in parallel horizontal planes, as otherwise it would be impossible to obtain a connected or continuous view of them. The aim has been to give a definite, composite, and stereoscopic mental picture of every region of the body, step by step, and part by part. The atlas will be published in twelve parts, of which the first three, dealing with the upper extremity, are already issued. If we take the part dealing with the shoulder and upper arm as a fair index of what the other parts will be, each part will consist of some twelve figures, most of them coloured. While the idea of the atlas is perhaps not entirely original in every respect—the old "window atlas" in which sections could be lifted up and folded back and so parts underneath exposed to sight might, we think, be regarded as an earlier form—there can be no question that in the hands of Dr. Cheesman the plan has undergone a process of elaboration which makes it in all essentials an original piece of work and one which we think may well prove helpful to the student, particularly in revision, for, as in all atlases, the stereoscopic representation tends to be defective; to obtain a true conception of depth it would appear that there is no substitute for dissection. The atlas is accurate to an unusual degree for a first edition; the figures are not lacking in artistic finish, and the dissections and planes have been chosen with judgement and skill. There have evidently been technical difficulties in the exact application of colour to the blood vessels—difficulties which have not been in many cases entirely surmounted. We consider, however, the atlas a highly commendable production on which both Dr. Cheesman and the publishers may be warmly congratulated. As the price of each part is only half a crown, and as each part can be purchased separately, we have no hesitation in advising any student who experiences difficulty in his study of anatomy to purchase a part and to find out for himself if he receives material assistance—as we think he will—from the method here devised.

The *Atlas of Human Anatomy*[4] by CARL TOLDT inevitably invites comparison with the similar atlas by Spalteholz. Judged by number of pages or illustrations, Toldt's is the larger, and yet it is published in two volumes, whereas Spalteholz's is published in three. Naturally the subjects chosen for illustration are largely identical, but there is a striking difference in the manner of their reproduction, for whereas in Toldt's the figures are line drawings, in Spalteholz's they are half-tone. The atlases illustrate very clearly the advantages and disadvantages of the two methods, the line drawing permitting of much greater detail, while the half-tone, sacrificing a certain amount of detail, succeeds in conveying the clearer conception. There is a danger in line drawings of attempting too much detail, with the result that definition is obscured, if not actually lost, a danger which Dr. Toldt has not always been able to avoid, as, for instance, in the figure, numbered 353, of the calcaneum. The absence of any illustration showing the auriculo-ventricular bundle suggests that the atlas is not in every respect abreast of the times. A certain carelessness is also evident here and there—the crowns of the teeth, for instance, in figure 556. We note, too, a repetition of the error that angulus Ludovici means angle of Ludwig. On the whole, however, the atlas—which must have entailed in its preparation great patience and labour as well as ingenuity—reaches a very high standard of excellence, and the choice between it and Spalteholz's must largely depend on the preference which the student may have for a line or half-tone drawing; it must partly depend, too, on the depth of his purse, for Spalteholz's is more than half again as expensive as that of Toldt's, the result no doubt of the more generous use of colour by Spalteholz.

L'Anatomie en Poche[5] is a small pocket atlas with 297 illustrations—a kind of companion volume in French to the well known Gray's *Pocket Anatomy*. The illustrations, of which many are coloured, follow the usual lines, with, however, a definite bias to the diagrammatic, particularly evidenced in those dealing with the nervous and lymphatic systems. The main advantage of the atlas lies clearly in its size and the consequent ease and frequency with which it may be consulted. The illustrations are on the whole well chosen, clear, and accurate. The book is, we think, likely to prove of assistance to those students who, for one reason or another, find during the day short intervals of leisure, as, for instance, on railway journeys.

LOCAL ANAESTHESIA FOR THROAT, NOSE, AND EAR.

DR. KING has rendered a service of inestimable value, not only to laryngologists, but also to general surgeons who employ local anaesthesia, by setting out in an impartial yet authoritative manner the present position relating to the properties and employment of local anaesthetics.

This occupies about half of his book entitled *Local Anesthesia in Otolaryngology and Rhinology*.[6] The second part of the volume consists of the reports of the committees of the American Medical Association on the toxicity, advantages, and disadvantages of the various local anaesthetics in nose and throat work. This is edited by Dr. Emil Mayer, the chairman of the research committee on local anaesthesia. The third part consists of a folded table, contained in a pocket in the cover, setting forth the details of forty-three cases in which death occurred under local anaesthesia.

The book is worthy of careful and serious study by all who use local anaesthetics; the general conclusion is that cocaine should never be injected, and only applied in weak solutions, but that for injections novocain in dilute solution is both safe and efficient. The great majority of accidents have followed the use of cocaine, and it is worth noting that Dr. Rudolph Matas, the celebrated surgeon of New Orleans, has advised that the use of cocaine should be abandoned altogether. While the recommendations do not go to this length, yet the use of cocaine paste is unsparingly, and as we believe rightly, condemned. The use and value of antidotes and methods of resuscitation are left a little uncertain, but it appears that experimentally the use of calcium salts in cocaine poisoning has no value. It is clear, however, that if the recommendations put forward are universally adopted accidents will almost, if not entirely,

[3] *Baillière's Synthetic Anatomy.* By J. E. Cheesman. Part I, The Upper Arm and Shoulder; Part II, The Forearm; Part III, The Hand. London: Baillière, Tindall and Cox. 1926. (Double post 8vo, 1 folder and 12 figures each part. Complete in twelve parts, 2s. 6d. each part.)

[4] *An Atlas of Human Anatomy.* By Carl Toldt, M.D., assisted by Prof. Alois Dalla Rosa. Adapted to English, American, and International Terminology by M. Eden Paul, M.D.Brux., M.R.C.S., L.R.C.P. Revised edition. New York: The Macmillan Company. 1926. (Double demy 8vo, First Section, pp. 401, 377 figures and index; Fourth Section, pp. 402-985, figures 641 to 932 and index. 42s. net.)

[5] *L'Anatomie en Poche.* Par Victor Pauchet et S. Dupret. Paris: G. Doin. 1926. (4½ × 7½, pp. 316; 297 figures. 25 fr. net.)

[6] *Local Anesthesia in Otolaryngology and Rhinology.* By James Joseph King, A.B., M.D. New York: Paul B. Hoeber, Inc. 1926. (Med. 8vo, pp. xi + 205; 21 figures. 5 dollars.)

cease to occur, and it is also apparent that accidents, both fatal and also of minor degree, have been far more frequent than the number reported might lead us to assume.

The new anaesthetic borocaine is not mentioned, but apart from this the summary is complete and unbiased. It may be that the ideal agent for local anaesthesia has yet to be found, but for the moment Dr. King seems to have said the last word on this important matter.

SURGERY AT THE SALPÊTRIÈRE.

PROFESSOR A. GOSSET, professor of clinical surgery in the Faculty of Medicine of Paris, and surgeon to the Salpêtrière, has done well to follow the lead of J. M. Charcot, Pierre Marie, and other physicians who have shared the medical riches of the great infirmary with the world, by deciding to bring out *Travaux de la Clinique chirurgicale de la Salpêtrière.*[1] This first volume, in the preparation of which he has been assisted by fourteen collaborators, contains much interesting material, and its 118 well executed figures are in keeping with the character of the text. Of the sixteen articles, Professor Gosset has written the whole or part of five. Together with Ivan Bertrand he describes as gliomas the tumours often pedunculated and commonly arising from the lesser curvature of the stomach, which have been recorded as sarcomas, leiomyomas, or fibromas; as they are especially derived from the sheath of Schwann they are here divided into massive, myxomatous, ulcerated, and pedunculated schwannomas. With J. Charrier and Ivan Bertrand, Professor Gosset records, with a well illustrated account of their histology, two cases of polycystic gliomatous tumours of peripheral nerves. He also writes on choledochotomy for gall stones, with W. Mestrezat, on the nature and mode of formation of "white bile," and on cholecystography with G. Loewy. These three valuable articles on biliary disease are supplemented by Petit-Dutaillis and Mestrezat's critical contribution, fortified by many observations, on hypercholesterinaemia, and on cholelithiasis, in which they show that from a diagnostic point of view this is of very little value. The wide range of activity of the department is shown by the inclusion of J. Magrou's account of tumours in plants, and his record in conjunction with P. Rouché of actinomycosis in a war wound. Radium treatment of cutaneous cancer is regarded by E. Wallon as the most satisfactory method; Francillon-Lobre reports on radium therapy in 155 uterine fibromyomas during the past five years at the Salpêtrière, and P. Rouché and J. Paul contribute their observations on the blood of cancerous subjects after radium treatment. Two unusual cases of interest are published respectively by D. Petit-Dutaillis on intermittent hydronephrosis in a horseshoe kidney, and by R. Soupault and Ivan Bertrand on a thyroid adenoma of the benign chorion-epithelioma type.

There are other attractive articles in this new publication, which will ensure its welcome by scientific surgeons.

DAME LOUISA ALDRICH-BLAKE.

IN his brief preface to a concise biography of *Dame Louisa Aldrich-Blake,*[2] Lord RIDDELL says, "I have tried to show what she was as well as what she did." In this aim he succeeds well, for the reader gets from it a clear conception of a remarkable woman.

Lord Riddell's task cannot have been easy, for written material from which to glean information was scarce, and revelations of an intimate nature were not part of Dame Louisa's habit of mind. Nevertheless, from the dry facts of ancestry, environment, and achievements the author has contrived to create a picture which lives. He compares Dame Louisa to a "stately frigate, which rarely furls its sails, and is set on a steady course through the buffeting waves of life." She led a life internally serene, and externally concentrated on achievement of purpose. In reply to an inquiry from Lord Riddell as to how she succeeded in being so disinterested, she gave this characteristic answer: "Never having been compelled to earn my living, I have been freed from the strivings that inevitably beset the lives of most professional people."

An interesting chapter is that one which contains quotations from Dame Louisa's collection of aphorisms. The address she gave at the School of Medicine for Women in 1900 sets forth her philosophy, and is quoted at some length. "No man is a hero to his own valet," but many greater folk might well envy the unspoken testimony in the bare statement made by the author that Dame Louisa's maid was with her for twenty-five years, and in the note of true devotion sounded by her chauffeur in his description of the final journey to Bicknor.

THE WAR HISTORY OF THE UNITED STATES ARMY MEDICAL DEPARTMENT.

THE medical history of the United States Army in the great war is being published at intervals as each subject is completed for the press. Thus the first volume to appear was the last of the scheduled series—namely, Part I of Volume XV, containing tables of anthropological measurements of recruits. It came out in 1921, and no other volume was published until 1923, when Volume I on the administrative work of the Surgeon-General's Office in Washington and Volume V on the military hospitals in the United States were issued. These were followed in 1924 by Part II of Volume XI on surgery, in 1925 by Part II of Volume XV on casualty statistics, and more recently by Volume VIII on field operations. Only one-third, therefore, of the complete series has so far been published. In this connexion it may be recalled that the eleven volumes of the comprehensive British medical history of the war were completed in 1923, and that by the end of that year all but the last two, which did not emerge from the press until early in 1924, had been published.

Volume VIII of the United States history[3] is a massive volume of 1,097 pages, and is the equivalent of the four volumes of the general history of the British medical services, whose arrangement it follows closely. The first section, on field operations, gives a general account of the United States medical organization and of its medical units in the field, together with a brief chapter of less than three pages on the veterinary service, which came under the administration of the medical department in 1916. Section II deals with the work of the American divisions incorporated in French armies during the operations subsequent to the German advance in 1918 south of the Somme, and during the operations on the Aisne and Marne, which inaugurated the allies' advance to victory. It was not until after this phase of the war that the American Expeditionary Force was in a position to concentrate as an army on its own front and with its own lines of communication. The U.S.A. First Army was then organized in August, 1918, and in the middle of September was allotted the task of carrying on operations on the St. Mihiel front and in the Meuse-Argonne sectors. The work of its medical services during these operations is recorded in Sections III and IV of the volume. The Second U.S. Army was organized in time to take over the St. Mihiel front from its First Army before the armistice, but made no active advance until three days before the cessation of hostilities. Its operations, together with contemporaneous operations of certain American divisions with French armies in Champagne and Flanders, are described in Section V. The next section is a single chapter on the training of the U.S.A. Second Corps with the British Second Army and the subsequent activities of the corps with our Fourth Army during the advance to victory. The final section of the volume contains chapters dealing with the occupation of Germany after the armistice by the U.S.A. Third Army, which had been in course of preparation, and with an account of American medical services in Italy, North Russia, and Siberia. The last hundred pages form an appendix containing brief histories of each division

[1] *Travaux de la Clinique chirurgicale de la Salpêtrière.* Publiés par A. Gosset. Première série. Paris: Masson et Cie. 1926. (Imp. 8vo, pp. 254; 118 figures. 8s. 4d.)

[2] *Dame Louisa Aldrich-Blake.* By Lord Riddell. London: Hodder and Stoughton, Ltd. 1926. (Demy 8vo, pp. 91; 8 plates. 6s. net.)

[3] *The Medical Department of the United States Army in the World War.* Volume VIII: Field Operations. Prepared, under the direction of Major-General M. W. Ireland, by Colonel Charles Lynch, Colonel Joseph H. Ford, and Lieut.-Colonel Frank W. Weed. Washington: Government Printing Office. 1925. (Sup. roy. 8vo, pp. 1097; 23 tables, 4 charts, 60 plates, and 99 figures. 3 dollars.)

in the field, extracts from field service regulations and the manual of the medical department, and tables of organization of the United States Army.

It is not possible to examine critically, or to do full justice to, a volume of this kind in a review of the length possible to us. Generally speaking, the medical experiences and the lessons learnt from them are similar to what has already been recorded in the British official medical history of the war. The Americans appear to have been in a constant state of anxiety on account of shortage of medical personnel. In one place it is stated that the armistice was the only thing that saved the medical department from a disastrous situation because of this. Yet at that time the U.S.A. medical services had 30,591 medical officers and 281,341 enlisted men. With these enormous resources, more than double those of the British medical services for a much larger force and employed over a much longer period of time and in more varied and wider fields of war, we can only surmise that, if there was so serious a shortage, the personnel could not have been distributed economically. The number and variety of specialists and specialist teams also appear to have been a distinct drain not only on personnel but also on transport and equipment. Specialists were to be found in every zone of operations in the field, and we read of surgical, orthopaedic, psychiatric, tuberculosis, urological, and gas treatment experts in divisional triage stations, and even in advanced dressing stations. Also, on more than one page, the multiplicity of clearing and special hospitals is noted as causing confusion and wastage of personnel and transport.

The printing, illustrations, and maps in Volume VIII are beyond praise, although some of the maps are too crowded with detail to make it possible to follow them with ease. As a book of reference and study for British readers it will prove a useful supplement to the British medical history of the war, as in many respects it confirms and emphasizes several of the lessons we had already learnt before our American colleagues came on the scene. The price, it may be noted, is exceptionally low for a work of this kind.

NOTES ON BOOKS.

DR. F. H. RICHARDSON finds that, notwithstanding the flood of books on what is called the new psychology, it is not easy to find concrete suggestions for parents on the management of the early years of childhood. He has endeavoured to supply the want by his *Parenthood and the Newer Psychology*,[10] wherein he aims at setting forth the cardinal principles of this psychology, and at applying the principles in such a manner that the parent shall better understand his child. His chapters inform us that the greatest thing in the world is love; that the greatest danger in our lives is arrested development; that the strangest thing in the world is our consciousness; and so on. The greatest opportunity ever offered is said to be the education of a child. This appears to be an arduous task, and it is surprising that the American father can find time to do it. He must visit his child's school, not once, but several times each term, as a leisurely observer of the pabulum with which his child is being fed. Mentally he must place himself in positions similar to those in which his child is being put, in order to judge of the situation. If he finds the teacher's explanations muddled, and if he evaluates properly the feelings of his son, he must begin to look about him for a better school, and be prepared, if necessary, to dispense with a much-loved motor car or a highly prized style of living in order to obtain better educational facilities.

The second part of the third volume of the system of medicine,[11] edited by Professor G. VON BERGMANN and R. STAEHELIN, is devoted to diseases of the alimentary system. Affections of the liver, bile ducts, and pancreas are discussed by Dr. Friedrich Umber of Berlin, who prefaces his clinical study by remarks on the development, structure, and chemical composition of the liver. A bibliography of ten pages is appended in which British names are conspicuous by their absence. The chapter on the diagnosis and treatment of intestinal diseases in general is written by Professor F. Seiler of Berne. To the first part of the fourth volume Professor Paul Morawetz of Leipzig and Dr. Gerhard Denecke of Marburg contribute an article on the blood and its diseases, including a consideration of its physiological chemistry and methods of clinical examination. Professor Felix Lommel of Jena writes on diseases of muscles, bones, and joints, Professor Max Klotz of Lubeck on rickets, and Professor W. Alwens of Frankfort on late rickets, osteomalacia, senile osteoporosis and osteopathies due to starvation. Professor Leopold Lichtwitz is entrusted with the section on diseases of metabolism, including diabetes mellitus, gout (in which he has the collaboration of Dr. Steinitz of Hanover), obesity, malnutrition, and various anomalies of the urine. An appendix contains an article by Dr. Erich Meyer of Göttingen on diabetes insipidus. The book is a laborious compilation which will no doubt be found useful for reference.

Hygieia, or Disease and Evolution[12] is Dr. BURTON PETER THOM'S contribution to the To-day and To-morrow Series of Messrs. Dutton of New York. Though Dr. Thom is not a very clear exponent of his object, we gather that he is a convinced optimist. The disease factor in evolution has, he thinks, two aspects—the biologic and the sociologic. Diseases not only eliminate the unfit; epidemics may be a further blessing in disguise by acting as milestones in the progress of humanity. Thus, according to Dr. Thom, the Black Death more than anything except the advent of Christianity broke the power of the strong over the weak, and inaugurated the glorious era of industrialism which is transforming the earth and all that dwell therein. Notwithstanding its beneficial work, disease will ultimately disappear, and the prohibition of alcohol, it is held, will help its disappearance, and assist in the advent of the golden age when misery will be no more, and peace, health, and happiness will reign supreme.

In their *Health Visitor's Guide*[13] the Misses ASHBY and EARP state that there should always be a period of at least two years between the birth of one child and the next, thus effectively eliminating any more families of twenty. They advise scrubbing the nipples with a nail-brush to make them tough and supple; and they quote, apparently with approval, a child who, when asked to play a game, said, "No, I have been naughty; I must stand in the corner." Apart from such slight eccentricities their little book is a useful compendium for the health visitor, and may help, as suggested in the preface, to condense and "pigeon-hole" her knowledge.

The aim of *Baillière's Nurses' Complete Medical Dictionary*,[14] edited by Dr. H. CLIFFORD BARCLAY, is to fulfil at once the purpose of a dictionary and an encyclopaedia for nurses. The present edition contains a number of new words dealing with the subjects of electricity, midwifery, ultra-violet rays and x rays, and contraception. The work as a whole fulfils a useful purpose, but is sadly in need of revision. In addition to the presence of many words not in common use we have noted several errors, such as "empyaema," "labium minor," and "a white striae," as well as the statement that Koplik's spots are found in anaemia and are caused by the Leishman-Donovan parasite, that typhus comes from flea-bites, and paratyphoid is caused by the paracolon bacillus.

The Nursing Mirror Pocket Encyclopaedia and Diary, 1927,[15] is the result of a thorough revision of previous issues, while several new subjects have been introduced. This handy book is constructed on most practical lines, and will be found very helpful as a pocket reference guide for most contingencies that are likely to be encountered in nursing. The alphabetical arrangement of the contents and the careful attention paid to separating clearly the various paragraphs facilitate quick reference.

Dr. CARL POTOTZKY'S book on gymnastics for nervous children[16] is intended for doctors, teachers, and parents; it consists of a brief description of thirty-nine exercises, each of which is accompanied on the opposite page by an excellent photograph of the child engaged in its performance.

[10] *Parenthood and the Newer Psychology*. By Frank Howard Richardson, A.B., M.D. New York and London: G. P. Putnam's Sons. 1926. (Extra post 8vo, pp. xx + 200. 7s. 6d. net.)

[11] *Handbuch der inneren Medizin*. Zweite Auflage, herausgegeben von G. von Bergmann und R. Staehelin. Dritter Band, Zweiter Teil: Erkrankungen der Verdauungsorgane II, und Vierter Band, Erster Teil: Blut-Bewegungsapparat-Konstitution-Stoffwechsel. Berlin: Julius Springer. 1926. (Roy. 8vo, Bd. III, pp. ix + 723, 119 figures; G.M. 48: Bd. IV, pp. xii + 1033, 126 figures; R.M. 69.)

[12] *Hygieia, or Disease and Evolution*. By Burton Peter Thom, M.D. To-day and To-morrow Series. New York: E. P. Dutton and Co. 1926. (Post 8vo, pp. 107.)

[13] *Health Visitor's Guide*. By Lucy E. Ashby and Kate Atherton L. Earp. London: Faber and Gwyer, The Scientific Press, Ltd. 1926. (Fcap. 8vo, pp. viii + 131. 3s. net.)

[14] *Baillière's Nurses' Complete Medical Dictionary*. Edited by H. Clifford Barclay, M.D., F.R.C.S., etc. Third edition. London: Baillière, Tindall and Cox. 1926. (Imp. 32mo, pp. vii + 248. 3s. 6d. net.)

[15] *The Nursing Mirror Pocket Encyclopaedia and Diary, 1927*. Twentieth year, enlarged and thoroughly revised. London: The Scientific Press, Faber and Gwyer, Ltd. 1927. (Imp. 32mo, pp. xix + 385; illustrated. 1s. 6d. net.)

[16] *Konzentrationsgymnastik für zerstreute und nervöse Kinder*. Von Dr. Med. Carl Pototzky. Leipzig: G. Thieme. 1926. (Post 8vo, pp. 80; 34 plates. M. 3.)

PITFALLS IN DIAGNOSIS.

ADDRESS BY PROFESSOR FINNEY OF BALTIMORE.

DR. J. M. T. FINNEY of Baltimore (Professor of Clinical Surgery, Johns Hopkins University) addressed the Post-Graduate Hostel, at the Imperial Hotel, London, on January 18th, and the Section of Surgery of the Royal Society of Medicine on the following day. In both cases the announced subject was "The pathology and diagnosis of gastric and duodenal ulcer," but in addressing the post-graduate audience Dr. Finney took a wider range, and spoke of pitfalls in making a diagnosis in abdominal conditions generally. He adopted as his "text" the title of a book recently published in the United States by a well known war correspondent. The title was "Concerning the operation," and the book was written during the convalescence of the author, and contained some reflections which Dr. Finney found more thought-provoking than complimentary.

Diagnosis, said Dr. Finney, was sometimes spoken of as if it were a routine matter—as though any fool could make it. He himself, however, found great difficulty in reaching a positive conclusion, even with the best help he could obtain from instruments of precision. Some surgeons were accustomed to inveigh against the physician on this matter of gastric ulcer, saying satirically that the ulcer had been "cured" medically half a dozen times already. Well, perhaps it had, perhaps it had not. One surgeon in the States was accustomed to say, with a wave of his hand, "The aseptic scalpel is the absolute panacea for all surgical ills." That sounded well; it caught the gallery. But what about the percentage of mortality in every surgical operation? Even in the best hands, under the best conditions, in the best hospitals, there was an appreciable mortality rate in surgery, also an appreciable percentage of unsatisfactory results after operation. It puzzled him to hear surgeons claiming 100 per cent. of cures for a given procedure.

In certain cases, even with the most skilled help, it was necessary to make an exploratory incision in order to ensure the diagnosis. With the open abdomen the surgeon was dealing no longer with a theory, but with a condition. In the absence of some definite, demonstrable pathology he found himself closing the abdomen again, and he thought that was good surgical judgement. It seemed to him that most of the bad results in surgery were due to the non-discovery of a definite pathological condition at the time of operation. Given the definite pathological diagnosis, the rest was easy. The actual art of surgery was a thing that almost anybody could acquire. It was a question of manipulative skill and of sufficient experience as a result of repeated operations. But surgical judgement was the rarer thing. It was not altogether intuitive—though some people seemed naturally to do the right thing—but most of it was just downright hard work, careful observation, and the exercise of one's reasoning capacity.

Dr. Finney was specially impressed with the difficulty of differentiating between a variety of possible things in dealing with abdominal conditions. Some years ago he was called out into the country to see a young girl who had pain in the stomach, vomiting, and so forth, and whose case, from the description, looked like a typical appendicitis. But after a close examination the only thing he was sure of was that this was not an acute appendix. The country doctor in charge of the case asked him what he was going to do, expecting him to do something. He replied that if he had the girl in hospital at Baltimore he would not operate. But he was compelled to return to Baltimore, and was begged to do something before he went. The case was put to the girl's parents, who were sensible folk, and they said, "Would it not be safer to take the appendix out?" Rather against his better judgement he took the appendix out, and found, as he expected, nothing there to account for the condition. Returning to Baltimore, he received next day a laconic telegram from the doctor; it read simply, "Measles"! Every surgeon must have seen these abdominal cases, looking very much like appendicitis, in association with certain of the acute exanthemata, probably arising from some form of congestion. Shortly after this case he was called to see a child in Baltimore with a similar condition. With this experience fresh in his mind, and as the characteristic signs of an acute appendix were not present, he asked casually whether any measles were about, and learned that actually there was a case of measles in the same house. This case, again, proved to be measles; but, just to show how fatal it was to argue from one case to another, he was called shortly afterwards to another case presenting similar features, and on the strength of this experience he suggested measles; at two o'clock the following morning he was summoned by telephone to perform an operation for acute perforated appendix. The whole point of the matter was not to be too cocksure about diagnosis. It was better to have an open mind and the humble sense of being human and prone to mistakes.

Many years ago, before the x rays were available, he was called to see a boy who was suffering from severe abdominal pain and upset. It appeared that he had been eating nuts. Sir William Osler, who was in Baltimore at that time, used to say that every circus that came to town brought an epidemic of appendicitis owing to the consumption of peanuts and circus lemonade by the juvenile community. There appeared to be reason to suspect appendicitis in this case. But when Dr. Finney was sent for to operate he refused to accept the ready-made diagnosis. He satisfied himself that this boy had not acute appendicitis. One feature of the case was that the boy insisted on lying with his thigh curiously flexed, maintaining this position day after day. He thought of hip disease, of everything except the right thing. The boy had no local abdominal signs, though he insisted that his pain was abdominal. Sir William Osler was asked to examine him. By that time the boy had developed a cough, and as there was a history that he had visited a house in which there were several cases of typhoid fever, Osler, with this in his mind, said that it looked like an atypical typhoid, but beyond that he would not commit himself. Other diagnosticians were called in, but without result. Not until a week afterwards did the true condition reveal itself. It was an acute osteomyelitis in the ilium, and the pain had been referred to the abdomen. By that time the condition was septic, and although an operation was done, the boy died.

In diagnosis and in choice of operation also it was very important not to go upon preconceived ideas. Nothing militated so much against success. To determine the best thing to do, once the condition was diagnosed, was not a rigid matter at all; the whole of one's judgement had to be bent to the particular case in hand. There was no one surgical procedure which was applicable to all cases. The choice of procedure must depend upon the surgeon's judgement, experience, and observation of his own previous work and of the work of others. In gastric ulcer, for example, if the surgeon accepted the view, which was held by the Mayo Clinic, that 70 per cent. of gastric ulcers developed cancer, he was not doing his duty to his patient unless he did a wide resection. If he held that the proportion of cases in which this eventuality occurred was smaller, then the question arose whether one was justified in sacrificing so large a proportion of a vital organ like the stomach to relieve what might be an innocent ulcer. That was a question which would be answered by one man in the affirmative and by another in the negative, but the important thing was for the surgeon to have a reason for the operative course he followed—gastro-enterostomy or any other—which he could successfully defend against anybody except the fanatic. One famous surgeon in the United States, Murphy, was fond of using two words, which, Dr. Finney thought, ought never to be used in surgery—the words "always" and "never." Surgery was not as easily predictable as all that. If a thing was said "always" to happen, there would be found to be occasions when it did not happen; if it was said "never" to happen, it would be found happening. He begged surgeons to work out a philosophy in all these matters, and above all things to remember that every unnecessary operation was a reproach to surgery.

SMALL-POX IN THE NORTH OF ENGLAND.

OWING to the large number of cases of small-pox reported lately, both from Sheffield and the district around and from the county of Durham, we have thought it well to seek authoritative information on the spot. For the particulars given below we are much indebted to Professor F. E. Wynne, medical officer of health for Sheffield, and to Professor T. Eustace Hill, medical officer of health for the county of Durham. It will be seen from this general survey of the progress of the epidemic that, while there has been a very considerable prevalence of small-pox in both areas, the cases have been mild, and delay in diagnosis from this cause has favoured the spread of the disease.

THE SITUATION IN SHEFFIELD.

Sheffield was free from small-pox from 1910 until 1922, when eleven cases were discovered and dealt with between April and June. This outbreak appeared to be controlled by a very drastic policy of isolation and vaccination of contacts and a strict search for possible cases in the neighbourhood. Small-pox, however, was prevalent in adjoining areas in Nottinghamshire, Derbyshire, and Yorkshire. In 1923 three cases were discovered, followed by four in 1924. All of these cases were typical of the very mild type which has recently become familiar. A few had well developed eruptions, quite characteristic of the old type of small-pox, but even these cases escaped without any constitutional disturbance whatever.

On October 6th, 1925, a case was discovered in one of the elementary schools. This case was traced through a series of unrecognized cases to two boys who had been in contact with small-pox at Middlesbrough in June, and had there contracted the disease. Their illness had been regarded as chicken-pox; no doctor had been called in; they returned to Sheffield early in July, and before the end of the year forty-four cases had been notified. It was evident that the city was faced with the possibility of an outbreak on a large scale, and a hutment camp at Redmires was taken over from the Education Committee and equipped as a small-pox hospital. During the early months of 1926 the epidemic lingered on, but it was still possible to isolate all contacts in the houses retained by the corporation for this purpose, and in the summer months there seemed to be ground for hope that the epidemic had been overcome. In October of last year, however, the notifications began again to rise rapidly. The total number of notifications in 1926 was 163, of which 107 were made between October 1st and December 31st. For the first fortnight of the present year the notifications have been as follows: Week ending January 8th, 20; week ending January 15th, 157.

The resources of the city are now strained. It is not possible to remove all cases on the day of notification, and a large number of contacts are isolated in their own homes and are suffering serious inconvenience. The accommodation at the Redmires camp is being increased immediately up to 300 beds, and arrangements are in hand for the erection and equipment of further huts at once. Additional staff for the medical officer of health and the medical superintendent of the hospitals has been provided, and will be increased if necessary.

A campaign in favour of vaccination has been instituted in which the Sheffield press has cordially and most warmly co-operated. Thanks very largely to the four Sheffield newspapers, many thousands of persons in the city are being vaccinated or revaccinated. Public vaccinators and insurance practitioners are finding grave difficulty in coping with the demands made on their services. On Friday last, January 14th, a case of concealment of the disease was successfully prosecuted by the town clerk on the advice of the medical officer of health, but there is no doubt that other misdemeanours of this sort are occurring, which cannot always be detected or "proved."

From the medical point of view the most important fact is that while the majority of cases continue to be of a very mild type, often presenting some difficulty in diagnosis, there is now nearly always a history of symptoms at the stage of onset which are very marked and generally diagnosed as "influenza." This did not occur in the cases seen in 1922-24. Again, a considerable number of the cases seen in 1926 and in the first two weeks of the present year have not only had quite serious constitutional symptoms, but characteristic and severe skin lesions, some of which will probably lead to permanent disfigurement. All of these more serious cases are directly traceable to cases of the very mild, so-called "alastrim" type. There has as yet been no fatal case in Sheffield, though there was one in Mexborough, closely adjoining, and others recently elsewhere.

The situation at present is causing great concern to the Sheffield civic authorities, as it affects not only the health but the commercial prospects of the city. Neither effort nor money is being spared, and the health department is working in close co-operation with the Ministry of Health.

SMALL-POX IN DURHAM COUNTY.

The present epidemic of small-pox in the county of Durham may be said to have started in the early part of 1925. During the two previous years cases of small-pox occurred in a few districts; thus in 1923 there were 23 cases in the borough of Stockton, but the disease was stamped out by the second week in July, after which no cases occurred in the borough up to the end of the year. During the last quarter of 1923 an outbreak occurred in the Southwick urban district, adjoining Sunderland, and in the colliery village of Castletown, adjoining Southwick, 11 cases being reported from these two areas, but these two outbreaks were effectively dealt with, as is evidenced by the fact that no cases occurred in Southwick or the Sunderland rural district during 1924. Altogether 37 cases were notified during 1923, and 3 of them were probably not cases of small-pox. In the following year 21 cases were notified, 6 of them being in the Billingham urban district adjoining the borough of Stockton, while there were 4 cases in each of the boroughs of Durham and Stockton and 2 in the Stockton rural district. There is no doubt that the infection during 1923 and 1924 in the borough of Stockton and adjoining districts was the result of infection carried from Middlesbrough, on the other side of the Tees, where small-pox had been seriously prevalent. During the last quarter of 1924 there were only 3 cases in the whole of the administrative county.

During the first quarter of 1925 16 cases were notified in the administrative county, of which 8 were in Billingham, 4 in Brandon, and 3 in Annfield Plain, but these small outbreaks were effectively dealt with, for no cases were reported either from the Billingham or Brandon urban district during the last six months of 1925, and the last case in the Annfield Plain urban district during that year was in July. During the second quarter of 1925 there were 79 cases notified from the administrative county, the largest number of centres of infection being in the north-west of the county—namely, the urban districts of Blaydon, Leadgate, Ryton, Stanley, and Whickham, from which districts 32 cases were notified. For some time previously small-pox had been prevalent in certain districts in Northumberland, adjacent to the north-west boundary of Durham, and there appears to be very little doubt but that the infection of small-pox was carried across the border into these districts in north-west Durham, facilities for such spread being increased by the fact that in Northumberland a number of cases occurred which were not treated as small-pox, and there was also inadequate hospital accommodation for the isolation of such cases. During the same quarter there was an outbreak in a village in the Auckland rural district, 18 cases in all occurring during a few weeks, the spread of infection in that village being undoubtedly due to the first cases being treated as influenza and not recognized as small-pox. During the third quarter of 1925 the prevalence of small-pox considerably increased, almost entirely in districts in north-west Durham, 53 cases being reported from the Blaydon urban district, 27 in the adjoining Ryton urban district, and 23 in the Stanley urban district; while there were also 14 cases in the small Leadgate urban district, 8 cases in the Consett urban district, and 4 in the Benfieldside urban district, all situated in the north-west of the county. During the fourth quarter of

1925 the disease became seriously epidemic, and 729 cases of small-pox were notified, 357 of these being in the Blaydon urban district, 52 in the adjoining Ryton urban district, and 17 in the Whickham urban district. The disease also became seriously prevalent in Chester-le-Street and in the populous rural districts of Chester-le-Street, Easington, Houghton, Lanchester, and Sunderland. The total number of cases notified during 1925 in the administrative county was 976, and in addition there were 91 cases notified in the county boroughs, Gateshead 44, West Hartlepool 32, South Shields 10, and Sunderland 3; Darlington being the only county borough which was free from infection during the whole year.

During the whole of 1926 the disease was seriously prevalent in practically all the populous areas of the county during some part of the year, and cases occurred in every one of the forty-five sanitary districts with the exception of the borough of Stockton and the urban district of Barnard Castle. During the first quarter of the year there were 1,349 cases, of which 338 occurred in the Blaydon urban district, while over one hundred cases were reported from Chester-le-Street (175), Easington (157), and Houghton (103) rural districts. There were also 192 cases notified in the Gateshead county borough, and 172 in the South Shields county borough during the quarter. During the second quarter of 1926 there was a slight decline in the notified cases to 1,200, only 53 cases being reported from Blaydon, but the epidemic was marked in the urban districts of Brandon (89), Hetton-le-Hole (122), Stanley (200), and in the Lanchester rural district (128); while 64 cases were reported from the Gateshead county borough and 170 from the South Shields county borough. During the third quarter the number of cases notified in the administrative county declined to 800, only 19 cases being reported from Blaydon, but there were 118 in Hetton-le-Hole, 144 in Stanley, and 148 in the Easington rural district. Cases were also reported from all the county boroughs, the greatest incidence being at Gateshead (51) and at South Shields (35). During the last quarter of 1926 the epidemic took on much more serious proportions, 2,445 cases being reported, of which 558 were in the Brandon urban district, 145 in Crook, 171 in Hetton-le-Hole, 156 in Jarrow borough, 99 in Shildon, and 147 in Willington, while there were 304 cases in the Lanchester rural district, 188 in the Chester-le-Street rural district, 174 in the Easington rural district, and 164 in the Sedgefield rural district. Cases were reported from all the county boroughs, those with the greatest incidence being Gateshead with 129 cases and South Shields with 25 cases.

The disease during the whole period of its epidemicity in Durham has been generally of an extremely mild type with very few deaths. Although there were 5,794 cases notified during 1926, the total number of deaths registered in which small-pox was given as a primary or secondary cause was only 11, and during the last quarter, when 2,445 cases were notified, there were only 2 deaths in the administrative county, and in both of these small-pox was given as the secondary cause of death.

This very mildness of the disease has led to its spread in two ways; first, it has been extremely difficult to persuade the community of its seriousness, and it was not uncommon for people exposed to small-pox to state that they did not mind if they contracted the disease as they would be able to get a few weeks' treatment in a comfortable hospital with plenty of food, and very numerous instances have come to hand where there has been absolute neglect of precautionary measures on the part of individuals and families. Secondly, the disease was spread in a number of districts owing to the illness not in the first place having been diagnosed as small-pox, numerous cases having been treated as chicken-pox or influenza until suspicions were aroused as to the true nature of the epidemic.

Undoubtedly the spread of the disease has been facilitated also by the unvaccinated state of the large majority of the people in the county, and almost without exception those infected by small-pox had been either unvaccinated or else have been adults who have only been vaccinated in infancy. Moreover, even in districts where small-pox has become epidemic, there has generally been a great reluctance on the part of the people to take advantage of the protection offered by vaccination. It is very probable also that social conditions associated with the prolonged coal dispute have been a factor in the spread of the disease.

Although at the time that small-pox first became prevalent there was in every sanitary district special hospital accommodation for small-pox cases, over 200 beds being available, there have been times during 1926 when the accommodation proved itself to be quite inadequate for the prompt isolation of cases, in spite of the fact that considerable extensions in small-pox hospital accommodation was provided in a number of districts, and that two hospitals which had been used by the county council for the treatment of tuberculous cases, with accommodation of approximately 50 beds, were handed over to the district sanitary authorities for the treatment of small-pox. There has generally been a pooling of the small-pox hospital accommodation throughout the county, and in addition large numbers of cases have been isolated in the small-pox hospitals at Newcastle-on-Tyne, Middlesbrough, and Darlington, as a result of willing co-operation by the authorities concerned, and a large number of cases are still being treated in these hospitals outside the administrative county.

With the object of assisting the district sanitary and small-pox hospital authorities the Ministry of Health, with the consent of the county council, has issued regulations under Section 2 of the Public Health (Prevention of Disease) Act, 1913, as amended by Section 61 of the Public Health Act, 1925, empowering the county council, in certain circumstances, to provide additional small-pox hospital accommodation, and these regulations came into force in the early part of this year.

Although a large proportion of the population of Durham county is still unprotected by vaccination, there has, during the last eighteen months, been a large increase in the number of persons vaccinated. If the population could be brought to realize the absolute protection afforded by efficient vaccination the epidemic might be stamped out in a very short time, and the great financial loss, not to mention the suffering involved, brought to an end. It is estimated that each case of small-pox costs local authorities something between £10 and £12 per case in isolation, disinfection, etc., which means that during 1926 the cost of the small-pox epidemic to the district sanitary authorities has been at least £60,000.

It is interesting to note that in the Blaydon urban district, which, as the figures in this report show, was the original storm centre of the epidemic, the disease has apparently been stamped out, as not a single case was notified during the last quarter of 1926; while from the adjoining Ryton district there has not been a single case notified during the last six months of 1926.

The epidemic has been a great strain on the public health officers throughout the county, and it can be said without hesitation that, generally speaking, the spread of the disease has not resulted from any laxity on the part of those officers. Conferences of medical officers of health and medical officers of hospital authorities were held in May, 1925, and again in December, 1926, and various resolutions were passed, which were forwarded to, and considered by, the district sanitary authorities of the county of Durham. One of the resolutions passed recommended the compulsory notification of chicken-pox, which now operates throughout the county, and at the meeting held in December, 1926, the following resolutions were passed:

1. That in the opinion of this conference the present epidemic of small-pox would not have occurred if the stringency of the Vaccination Acts had not been weakened, and that prompt vaccination or revaccination of susceptible persons is of the utmost importance if the present epidemic of small-pox is to be brought under early control; and that if such vaccination or revaccination was secured small-pox in the county would be stamped out within three months.

2. That in the opinion of this conference hospital authorities of districts where the available accommodation is inadequate for the prompt isolation of all cases of small-pox should utilize, as a temporary measure, their ordinary isolation hospitals for the treatment of small-pox, where such hospitals are suitably situated for the purpose, and make arrangements with adjoining sanitary authorities for the treatment of their ordinary infectious cases in the adjoining hospitals, a pooling arrangement being instituted both as regards the isolation of cases of small-pox and cases of ordinary infectious diseases.

3. That if in any district there is available accommodation for small-pox cases in convenient empty buildings, arrangements should be promptly made for the use of these buildings for the isolation of small-pox cases; and that local hospital authorities should also consider the advisability of at once erecting temporary hospital accommodation to enable them to promptly isolate all cases occurring.

4. That the medical officer of health for each sanitary district should communicate with every medical practitioner in his district, calling his attention to the urgent importance of keeping a careful look-out for all suspicious cases of rash and of at once acquainting the medical officer of health of such cases, and that a copy of the monograph of Dr. McConnel Wanklyn, entitled *The Accurate Diagnosis of Small-pox*, should be issued by the medical officer of health of each sanitary district to every medical practitioner practising in that district.

5. That this conference urges upon the Ministry of Health the importance of amending the Vaccination Acts with the object of making vaccination more general and efficient, as vaccination affords the quickest, most scientific, and most economic means of preventing and arresting outbreaks of small-pox.

6. That a copy of the report of this conference be sent to the press, all medical officers of health of counties and county boroughs, the British Medical Association, and the Society of Medical Officers of Health, urging their unanimous support to the resolution relative to vaccination.

THE DRIFT OF MODERN ANTHROPOLOGY.

BY

SIR ARTHUR KEITH, M.D., F.R.S.

IT is useful for medical men to keep in touch with what is happening in the anthropological schools of Europe, for if anthropologists know their business and pursue it, what they teach as a theory in one year is not unlikely to become the basis of political practice in another. The political, or rather the economic, bearing of anthropology is very evident in the work which Dr. Walter Scheidt has written to serve as a general introduction to the study of human races.[1] The author is one of the younger anthropologists who have been bred in the schools of Munich and of Freiburg; for them evolution is not a dead process, one concerned in shaping human races which lived long ago and far away, but a very living thing, and is now determining the destinies of the nationalities of Europe. Dr. Scheidt and his colleagues regard evolution as a reality, and they are making it their business to find out how evolution in its widest sense is working out its ends under the conditions of modern civilization. Dr. Joseph Deniker's treatise[2] is of another kind; it is a clear exposition of all that relates to the identification of human races, to their distribution and to their ways of living. Anthropology is treated in this French treatise as if it were an academic discipline and had no ultimate bearing on human thought or action. Both of these works, in their respective ways, will provide their readers with an introduction to the wide and systematic study of anthropology; but for those who are about to begin this study Dr. Dahl's simple and living observations made on natives of the Australian bush[3] may serve their purpose better than the two more ambitious and systematic treatises.

To-day Dr. Dahl is the leading authority, not only in Norway, his native country, but throughout the world, on all that relates to the breeding and habits of fishes, but thirty-four years ago he was a young graduate, and had then placed at his disposal, by a generous fellow countryman, a sum of money which permitted him to spend three years in collecting natural history specimens. Two of these years were spent in Arnhem Land, the most northern part of Central Australia, where he made the acquaintance of other hunters and collectors, the native blacks. He spent month after month in their company gathering specimens and noting with a sympathetic and understanding eye their aptitudes and mode of gaining a subsistence. His book is an account of what he did, saw, and thought during these two years, and although it has only now appeared in an English dress, the original was written in Norwegian so long ago as 1897. It is the kind of book which will never grow old, and is a welcome addition to instructive books of travel.

Dr. Dahl describes the natives as "gatherers, catchers, and capturers"; they loved comfort, yet rarely erected a shelter; they enjoyed the warmth which clothing gives, yet never made it; they saw men sow and reap, but refused to copy them. Yet they had to labour harder and longer to obtain a bare subsistence in the "bush" than the Chinese gardeners who supplied Port Darwin with its vegetables. A little picture drawn by Dr. Dahl gives an intimate glimpse of what a primitive life means. He stepped from his tent one morning, having enjoyed a breakfast of damper, ham, and coffee, and had not proceeded far when he came across a native, also at breakfast. The native held in his hand, not a spoon, but a digging stick, wherewith he was laboriously searching for a sufficiency of earth nuts to provide his morning meal. It is well to realize what "primitive life" signifies before we praise it unduly. Another observation by Dr. Dahl helps us to explain a matter which often puzzles students of modern civilization. Less than two hundred generations back our ancestors lived much as those blacks do now, and yet we find among us individuals who are endowed with all the qualities which go to make excellent clinicians. Dr. Dahl's description of how a native hunter sets to work when he wishes to discover whether or not a hollow tree holds an opossum helps us to understand the form in which our clinical abilities had their earliest manifestation. Dr. Dahl observed that the hunter first percussed the trunk and noted the sound emitted; if still in doubt he placed his ear against it and listened; if still unsatisfied he took a long wand, and, wetting the point, climbed the tree until he reached an opening in the trunk, where he thrust in the wetted point of the wand. If on withdrawing the wand he found opossum hair sticking to it, or if it smelt of that animal, then he knew his prey was within, and at once, with his stone knife, took surgical measures for its exposure and capture. A century ago Laennec applied these old-world hunting methods to the human chest, and was acclaimed a discoverer. Modern genius is often a mere perversion of a primitive ability. One is very apt to underestimate the mental outfit needed for leading a primitive life. Most of us, even if we can swim and dive, would be at a loss to know how to recover a 60-lb. turtle which we had seen disappear in the depths of a pool. Yet the Australian black knows how to do it. On diving and reaching his booty he simply turns the carapace with the head of the animal upwards; whereupon the turtle, having to follow its head, makes for the surface, and once upon the surface all that the swimmer has to do is to keep his captive's head turned shorewards, where both arrive in due course. All great inventions are simple when we know how they are made. The native who discovered the management of turtles in deep water had a brain of a high order.

Dr. Dahl asks a question of the greatest interest to everyone, and returns an answer which, I think, most students of mankind will accept as true. Are the aborigines of Australia what they are for lack of opportunities, or are they what they are because of their mental outfit? Dr. Dahl sums up the evidence, and comes to the conclusion that it is not possible, by any process of education whatsoever, to convert an aboriginal tribe into a civilized community. Dr. Scheidt, if he knew of Dr. Dahl's opinion, would agree with it, for he realizes that we who form the nationalities of Europe come of an ancestry which has been sifted in the sieve of civilization for some two hundred generations; those ancestors whose mental abilities and proclivities fitted them for the restrictions and discipline of civilization have come through the meshes of the selective sieve; the families and breeds which refused to bend their necks to the yoke have been rejected and thus eliminated. If an aboriginal population is to become fit to live our lives it must do what our ancestors have done—go through

[1] *Allgemeine Rassenkunde, als Einführung in das Studium der Menschenrassen.* Von D. Walter Scheidt, Privatdozent für Anthropologie an der Universität Hamburg. Rassenkunde: Erster Band. München: J. F. Lehmann. 1925. (Sup. roy. 8vo, pp. vii + 585; 21 plates, 144 figures. M. 30.)

[2] *Les Races et les Peuples de la Terre.* Par Dr. Joseph Deniker. Deuxième édition, revue et considérablement augmentée. Paris: Masson et Cie. 1926. (Roy. 8vo, pp. viii + 750; 2 plates, 340 figures. 65 fr.)

[3] *In Savage Australia.* By Knut Dahl, Professor of Pisciculture at the Norwegian College of Agriculture, Oslo. London: Philip Allan and Co., Ltd. 1926. (Med. 8vo, pp. xii + 326; 27 figures. 21s. net.)

the sieve of selection for hundreds of generations. Dr. Scheidt is fully alive to the importance of Darwin's law of selection; but he lays even greater stress on Count Gobineau's doctrine of race. In a long and meritorious historical introduction, Dr. Scheidt, a German anthropologist, gives the French count, who began to preach his doctrine of race in the middle of last century, a foremost place among the students of mankind. Put briefly, this doctrine implies that a nation's destiny depends entirely on its racial composition.

It is interesting to note what the French anthropologist has to teach concerning these matters, for Dr. Deniker, although born in Astrakan, was in all respects a Frenchman. Dr. Deniker was bred in the school of Topinard; some forty years ago he was known to anatomists by contributions made to the embryology and anatomy of anthropoid apes. Then he took to the study of human races, and published in 1900 the first edition of the work noted here [a review of the first edition appeared in our pages, April 28th, 1900, p. 1030]. On the eve of the great war he had made preparations for a second edition, but died just as the war ended, and so it has come about that this work, although issued in 1926, is in reality a production of pre-war times. Nevertheless, it is a valuable record of fact and opinion, compiled by one of the foremost anthropologists of Europe. Nowhere in his pages does the name of Gobineau appear; indeed, we are quite convinced that if the matter had been put to him, Dr. Deniker would have rejected the doctrine so forcibly promulgated by Count Gobineau.

It was, in fact, Deniker more than anyone who gave rise to the conception that all the nationalities of Europe are mongrel entities. He believed that war, commerce, and repeated migrations had utterly confused the racial issues of Europe. Certainly a survey of historical records leads to such a conclusion; but there is much to be said against Deniker's doctrine of racial confusion, only it would take us too far afield to discuss such a large problem now. It is more to the point to note the criteria on which Dr. Deniker relied to separate the racial types of Europe from each other. They were three in number—stature, shape of head, and colouring. All of these characters are variable even within human stocks which we have reason to believe have been isolated and uncontaminated for many generations. The degree of variability among the individuals of a true race or breed of mankind is much greater than is usually believed. We have only to attempt to apply Dr. Deniker's criteria to the population of any part of the British Isles to realize the chaos which follows such an attempt. Dr. Deniker's scheme of classification, however well it looks on paper, breaks down the moment we attempt to put it into practice in the field. So far as his account of human races is concerned, I think that the one given by Mr. A. H. Keane in *Man Past and Present* (a new edition of which was prepared by Mr. Quiggan and Professor Haddon, and issued in 1920) is superior in every respect. Dr. Deniker, however, included a survey of man's structure and culture as well as of his racial distribution, and thus his book covers a much wider field than does Mr. Keane's treatise.

In the middle part of last century—when Count Gobineau's first book appeared—anthropologists discriminated unhesitatingly Saxon from Celt by their respective mental, moral, and emotional characters. Everyone is familiar with the detailed critical lists then drawn up; indeed, they are still the stock-in-trade of politicians. Dr. Deniker dismisses such modes of racial discrimination as "banalities." Indeed, he cites only one exception to his general condemnation, and that is contained in the report of the expedition which Professor Haddon led to the Torres Straits. Tradition and education do materially affect the actions and reactions of man's mind, but no one who takes into account all the evidence of everyday experience can do otherwise than come to the conclusion that human races differ profoundly in mental outfit. Our difficulties lie in discovering reliable and effective methods of measuring mental differences; our present methods have hardly a rule-of-thumb value. Even Dr. Scheidt, who estimates Gobineau's doctrine of race so highly, is in agreement with Dr. Deniker as to the futility of our present methods of measuring the mind of a race.

Dr. Deniker, like Dr. Scheidt, believes that a race retains its physical characters however much its environment may be changed. Amongst other examples he cites the case of German settlers in Siberia and in Brazil; at the end of four generations these settlers are still German in their physical characteristics. He holds that any race—the fair Nordics, for example—can be acclimatized *in time* to arctic or to tropical conditions; this is one of the few passages in which Dr. Deniker touches on a practical problem. He admitted that South Europeans will become fitted for life in the tropics in a smaller number of generations than will be the case with natives of North Europe. Acclimatization, Dr. Deniker held, can be brought about only in one way—through the operation of Darwin's law of "natural" selection; the mortality, he conceived, would be heavy in the earlier pioneer generations, but ultimately, after an undefined number of generations, there should emerge descendants of the original race well adapted for a full and healthy life under tropical conditions. It is possible that amongst the Queenslanders of to-day there may emerge certain families who find that they can tolerate a tropical temperature better than their neighbours, and by means of such selected families the white fringe may gradually creep northwards into the tropics. Even Dr. Deniker, I think, would never have suggested that the experiment of acclimatization should be tried by plunging a European community in the midst of tropical surroundings.

Dr. Scheidt as well as Dr. Deniker has much to say concerning the offspring which results when one primary human race is crossed with another. Both authors agree that a hybrid child is in reality a mosaic of characters rather than a real blend. There is no doubt that Mendel's laws can be applied to many of man's inherited characters, but it is also clear that our knowledge concerning the modes of human inheritance is still in its infancy. Dr. Deniker hardly touches on the laws of heredity, whereas Dr. Scheidt, as is now usual in German treatises on anthropology, deals with them at great length. We see, too, that biometrical methods are receiving very full treatment in the anthropological systems of Germany. In short, the tendency to-day is to base anthropology on the methods of experimental biology rather than on the principles of human anatomy. Nevertheless, a full knowledge of the human body is the ultimate foundation of anthropology.

VITAL STATISTICS FOR ENGLAND AND WALES, 1926.

We are indebted to the Registrar-General for the following statement regarding the birth rates and death rates and the rates of infantile mortality in England and Wales and certain parts of the country during 1926. The statement is issued for the information of medical officers of health. The birth rate and infantile mortality rate for London have been provisionally corrected for transfers.

ENGLAND AND WALES.

Birth Rate, Death Rate, and Infantile Mortality during the Year 1926 (Provisional Figures).

	Birth Rate per 1,000 Total Population.	Death Rate per 1,000 Population (Crude Rate).	Deaths under One Year per 1,000 Births.
England and Wales	17.8	11.6	70
105 county boroughs and great towns, including London	18.2	11.6	73
158 smaller towns (populations from 20,000 to 50,000 in 1921)	17.6	10.6	67
London	17.1	11.6	64

The death rate for England and Wales relates to the whole population, but that for London and the two groups of towns to the civil population only.

England and Wales.

The birth rate is 0.5 per 1,000 below that of 1925, and, with the exception of the rate in 1918, the last year of the war, is the lowest recorded.

The death rate is 0.6 per 1,000 below that recorded in the previous year and is equal to that of 1923, the lowest recorded rate. The infantile mortality rate is 5 per 1,000 births below that of 1925, but 1 per 1,000 above that of 1923, the lowest on record.

British Medical Journal.

SATURDAY, JANUARY 22ND, 1927.

HIGH BLOOD PRESSURE.

PHYSIOLOGY has long been, and is now more than ever, recognized as the basis of scientific physic; forty years ago the late James Andrew, senior physician to St. Bartholomew's Hospital, often recommended his clinical clerks to take Michael Foster's *Physiology* as their textbook, thus, though it is in no way really analogous, momentarily recalling Sydenham's advice to Sir Richard Blackmore to read *Don Quixote*. Since then the study of disordered function has displaced the pursuit of a structural basis for the manifestations of disease. Within the last three years two Harveian Orators have respectively insisted on "The debt of science to medicine" (Sir Archibald Garrod in 1924) and on "The debt of medicine to the experimental method of Harvey" (Sir John Rose Bradford in 1926)—two sides of a shield, but both showing the inseparable ties of physiology and medicine. During and since the war physiologists have been busy in helping to apply physiology to the prevention and elucidation of disease. Among physiologists who have thus brought physiology into more intimate touch with medicine is Professor J. A. MacWilliam of Aberdeen, who has long been actively engaged on the problems of blood pressure, and practising medical men owe much to him for popularizing the auscultatory method of estimating it; this was before the war, and in collaboration with his pupils Melvin and Murray. Since then he has written a series of papers, among which special reference may be made to a comprehensive one in *Physiological Reviews* (1925, v, 303-335), and to the last of several that have appeared in these columns. It is on "High blood pressure from the physiological aspect," and was given as a lecture before the James Mackenzie Institute for Clinical Research at St. Andrews. It is printed in the opening pages of our present issue.

In this paper Professor MacWilliam brings forward many interesting and suggestive points which deserve attention. Thus, as evidence of the importance of combining the auscultatory and tactile methods in estimating the blood pressure, he points out a fallacy resulting from repeated or continued compression by the armlet—namely, that the systolic pressure may appear to be lower by the auscultatory method than by the tactile procedure. A review of the numerous mass statistics now available of blood pressure at different ages shows that clinical observers have overestimated the normal rise in blood pressure in the second half of life, and that it does not amount to more than 15 mm. Hg. It is remarkable that cerebral haemorrhage, the incidence of which in persons with high blood pressure is estimated to be about 20 per cent., often occurs during sleep, when the systolic pressure normally falls. Light is thrown on this paradox by the observation that, whereas in sound sleep the blood pressure falls, in disturbed sleep the systolic pressure may rise by 50 to 70 mm., and the diastolic by 30 mm. Hg. Recollecting what occurs in the waking hours as the result of emotion, this effect of excitement during sleep is not surprising.

The view that high blood pressure is a compensatory process is criticized, and shown not to be supported by the argument that lowering of the blood pressure may make the patient worse. Further, some quite recent observations of Dr. C. Reid are quoted against the hypothesis that a heightened blood pressure necessarily improves renal efficiency as regards the excretion of nitrogenous waste products. While it is possible that there are two categories of supernormal blood pressure—one with, the other without a raised capillary pressure—there is no certainty that the pressure in one set of capillaries is an index of the general capillary blood pressure in a way analogous to arterial blood pressure.

The possible causes of high blood pressure are discussed at some length, and, although the matter is still left open for final decision, the pressor influence of supernormal blood pressure would appear to be exerted primarily on the central nervous system rather than directly on the peripheral vessels as a whole. Impaired blood supply to the vasomotor centre in the medulla is admitted as a cause, but the difficulties in ascribing this to an arterio-sclerotic condition of the blood vessels supplying the medullary vasomotor centre are set out. The existence of pressor substances, such as renin and guanidine, on the one hand, and of a deficiency of depressor substances on the other hand, is impartially discussed. Reference is also made to the observation of Drs. Orr and Innes that large quantities of water by the mouth reduce high blood pressure, and, further, keep it down for comparatively long periods. This method of treatment, which, of course, has been practised empirically at spas, is thought to act by washing out metabolites presumably of protein origin. This fall of blood pressure was observed both in normal and hyperpiesic persons, and it will be interesting to hear the results of the further investigations which Professor MacWilliam promises, for it is obviously of much practical importance to know in what kind of case the method is likely to be successful. On *a priori* grounds patients with impaired renal excretion would appear to be unsuitable, and Drs. Orr and Innes find that when the diuresis cannot keep pace with the intake of water, as may occur in renal inefficiency, there is a rise of blood pressure above the original level before the fall appears. But if this were the only contraindication, the washing-out treatment should be much more effective than it has been in the past in persons with pure hyperpiesia—that is to say, without any renal change or disorder.

THE SECOND VALUATIONS OF APPROVED SOCIETIES.

THE results of the valuations of approved societies are of great interest and importance, not only to the societies themselves, but to the medical profession also, as well as to all who are concerned with making the most of all available resources to improve the health of the nation. These results have not at the present time any direct bearing upon the question of the remuneration of insurance practitioners, for the cost of medical benefit (which, of course, includes a number of items in addition to this remuneration) is now, up to the limit of 13s. per insured person, a first charge on the insurance fund; but they determine the sum which, during the five years following the valuation, will be available for the provision of "additional benefits," which may, and usually do, include several "treatment benefits" as well as increased cash payments to sick insured persons. The first valuations were made as at December 31st, 1918. The second valuations have been, for convenience and

economy, effected in two groups, as at December 31st, 1922 and 1923, respectively. The report of the Government Actuary on these second valuations has just been issued, and a summary will be found in this week's SUPPLEMENT (p. 27).

The result of the first valuations was a surprise; the result of the second valuations would have been even more surprising if intelligent anticipation had not in large measure forestalled it. With a very small proportion of almost negligible exceptions, it is true, as Sir Kingsley Wood declared not long ago, that "approved societies are extraordinarily prosperous bodies, piling up huge surpluses which are, of course, partially built up by State contributions." The first valuations disclosed an aggregate surplus of £17,192,968, of which £9,184,087 was certified by the valuers to be disposable in the provision of additional benefits. The second valuations show total surpluses exceeding £42,000,000, and of this £27,000,000 is available for distribution as additional benefits in the ensuing quinquennium, the remainder being carried forward. These disposable surpluses must not be confused with the total of the accumulated funds of societies, which are represented by much larger figures. The purpose of the carrying forward of these relatively large amounts from the surplus to the next valuation is to provide for the possible contingency of the next ensuing quinquennium being markedly less prosperous than that over which the valuation extends. In that disappointing eventuality the carried-over amount would be available to assist in maintaining the then existing additional benefits over a further period. Even assuming that the great war has been the cause of a considerable part of the prosperity of approved societies, and recognizing that the rate of interest earned by capital over the past few years is not likely to be maintained at the same level, the contingency referred to must be regarded as remote and the provision made for it generous. To quote Sir Kingsley Wood again: "In all probability the amount of the surpluses, especially on the third valuation, will remain undiminished." As the Government Actuary's report itself says: "The general result of the valuation is to disclose a very strong financial position. . . . The level of the surpluses brought out on the present occasion is markedly higher than that disclosed in 1918."

Prominent among the factors, in addition to those mentioned above, which have resulted in such an advantageous situation has been the favourable sickness experience between the two valuations. This has been especially favourable as regards men, but, though there has been a continuous increase in the claims of women, particularly in the case of prolonged illness, these claims still remain below the expectation. There can be no doubt that the work of the medical profession—not merely the skill and attention given by insurance practitioners, but the efforts made by other branches of the profession to improve health conditions and increase the vitality of the industrial population—has been one of the most important contributory causes of this satisfactory state of affairs. The reduction in the birth rate, too, has, of course, resulted in a lessening of the amount required for maternity benefit. The year 1926 is outside the period over which the second valuations have extended, and it is well known that during the greater part of that year the sickness claims of insured persons directly affected by the coal stoppage were largely increased. The causes of this abnormal increase are the subject of anxious consideration by the Insurance Acts Committee, as well as by the Ministry of Health and approved societies. It is to be hoped that conditions such as these will not recur, for the effect on a financial position less strong than that now shown to exist might be serious, and must in any case be important; but it must be remembered that the second valuation period has itself included a time of prolonged industrial depression, which had an inevitable effect on contribution income.

Of the total number of insured persons 97 per cent. (some fourteen and three-quarter millions in all) are entitled to participate in the additional benefits to the provision of which this large sum of £27,000,000 is allotted. The benefits themselves, however, whether treatment or cash, will be very unevenly distributed. Each society or branch is separately valued, and is an entity for these purposes, and the sums at their disposal per member are unequal. Their schemes for the character of the additional benefits to be made available are also diverse, some preferring cash benefit to treatment benefits, and some providing one kind of treatment benefit rather than another. It is possible that the sums allotted to certain treatment benefits by certain societies may in the event prove not to be correctly proportioned, and it is to be hoped that some adjustment may be allowed, if necessary, in this matter; but the total sum available should be adequate for its purposes, and it does not appear from the report that there is any financial reason why the extension of the insurance scheme in the direction of a specialist, consultant, and laboratory service, as recommended by the Royal Commission, should meet with any undue delay. The situation does show, however, with its large surplus on the one hand and its unequal and unsatisfactory division on the other, that when viewed from the standpoint of the prevention and cure of sickness the approved society system is very imperfect, and may even be regarded as an obstruction to the full use of these large sums of money in the interest of public national health. As the Minority Report of the Royal Commission puts it, if an approved society "is composed of extremely healthy members it can, by providing a wide range of additional benefits, many of a medical character, enable them to become still more healthy. If, on the other hand, it is composed of members whose standard of health is below the average, or who may be engaged in hazardous occupations or occupations which call for a higher degree of physical strength than others, the current expenditure on cash benefits leaves no margin for surplus, and as a consequence that section of the community who need all possible services of a preventive and curative character are limited strictly to the bare statutory benefits of the Act."

SIR BERKELEY MOYNIHAN.

MANY beyond the ambit of the city and its University, and not influenced by the individual sentiment of loyalty a great medical school inspires, will be interested in the announcement made in a letter published elsewhere in this issue (p. 163) to the effect that a fund has been opened in Leeds to get Sir Berkeley Moynihan's portrait painted. That will be at any rate its primary object, and in the circumstances the most interesting and appropriate. His is a great name in surgery, and the record of his achievements will remain, but it will not wholly explain to future generations the position he has attained in the profession to-day; for this some understanding of a remarkable personality is necessary, and nothing will better help to convey it than a good portrait. Subscriptions, which must not exceed £5, are to be sent to the Treasurer, Moynihan Portrait Fund, Town Hall, Leeds.

DIET AND CANCER.

To the irresponsible amateur it may seem easy to ascertain the causal relationship between tomatoes or meat-eating and cancer or appendicitis; he may think it as obvious as that between Tenterden Steeple and the Goodwin Sands or the influence exerted by the cat population on the fertility of red clover. But the scientific worker knows how many and dangerous are the pitfalls which beset such an inquiry, and how much watchful patience and hard work are needed to come at any trustworthy result. The report to the Ministry of Health on diet and cancer[1] by Drs. Monckton Copeman and Major Greenwood, just published, offers a case in point. As Sir George Newman remarks in his prefatory note, although of late years knowledge has increased of the effect of dietaries on nutrition in general as well as in specific morbid conditions, we have no evidence supporting a direct connexion between dietary and cancer, even cancer of the gastro-intestinal system. Therefore it seems to us that it was certainly worth while to enlist the willing help of Cardinal Bourne and other leading authorities of the Roman Catholic organization in an inquiry into the deaths from cancer in religious communities, whose members live under strict dietary rules, which vary in different communities, but involve in all more or less complete abstinence from meat and from rich and abundant food; all of these practices have been accused of contributing to the production of cancer. Such considerations no doubt moved the Departmental Committee on Cancer to undertake this investigation. The conclusion is that previous statements as to monastic communities cannot be substantiated, and that the incidence of fatal cancer in all such religious orders as were investigated is not lower than that in the general population at like ages; this applies to females as well as to males. The authors of the report testify gratefully to the value of the help of Cardinal Bourne and that of Monsignor Jackman and others who undertook what they justly describe as a most laborious business. While Drs. Copeman and Greenwood state that the labour has not all been in vain, they evidently entertain a certain sense of grievance that they should be expected to devote their energies for long periods to the investigation of "assertions supported merely by the vague pseudo-statistical evidence which is customarily cited respecting the roles of certain articles of common consumption in the genesis of cancer." To the main body of the report are appended some interesting notes on the incidence of fatal cancer upon inmates of prisons and mental hospitals. In the former case the inmates resemble those of religious houses only in the circumstance that they receive a diet less varied and less rich in proteins and fats of animal origin than the general population. An investigation of Goring's data leads to a negative conclusion, but the authors suggest that a further investigation may be desirable, and express a hope that they may be able to undertake it. As regards the mental hospitals, the factors involved are so many and the circumstances so different from outside life that no inference can safely be drawn from such statistics as exist.

[1] Ministry of Health Report No. 36. H.M. Stationery Office. 1926. Price 9d.

MEDICINE IN ANCIENT GREECE.

ONE of the periodical social evenings of the Royal Society of Medicine was held on January 17th, when the guests were received by Sir James Berry, the President of the society, and Lady Berry. In the library there was disposed an interesting collection, lent by the Wellcome Historical Medical Museum, bearing on medicine and surgery in ancient Greece, and this was the subject of an illustrated talk by Professor A. W. Sheen of Cardiff. The lecturer began with Aesculapius, who, he said, was probably a real person, subsequently made into a god. His sons, Podalirus and Machaon, were also famous for their skill in medicine, though they were warriors as well, and Machaon was wounded, which was a matter of great concern to the Greeks, for, said one of them, "A physician is worth a host of other men." After mentioning some of many references to medicine in Homer, Professor Sheen spoke of the health temples—a remarkable development of Greek medicine—and gave an account of the famous temple at Epidaurus, with its open-air wards and facilities for the entertainment as well as the treatment of patients. The cult of the serpent, which was sacred to Aesculapius, was practised in the healing of various conditions, including blindness, as witness Aristophanes:

> Then the god clucked
> And out there issued from the holy shrine
> Two great enormous serpents . . .
> And underneath the scarlet cloth they crept,
> And licked his eyelids as it seemed to him.

The pinnacle of Greek medicine was reached during the latter half of the fifth century B.C., in the time of Hippocrates. The medical school of Hippocrates was established on the little island of Cos—all that was greatest in ancient Greece appeared to have come from her islanders—where there was worked out a startlingly rational system of treatment of disease. Professor Sheen took his audience through a few extracts from the works of Hippocrates to show the character and genius of this remarkable man, or perhaps of his school, for some of the work suggested the existence of a clinical unit quite of the modern type. One quotation had a very modern note: "This I know moreover, that to the human body it makes a great difference whether bread be fine or coarse." There were very detailed statements in the writings of Hippocrates concerning operation arrangements. Professor Sheen quoted some passages which seemed to suggest that Hippocrates anticipated stethoscopic methods, and proved how rational he was with regard to epilepsy, which at that time was looked upon as a "sacred disease." Hippocrates regarded it as in no wise more sacred than any other, but as having a natural cause from which it originated like other affections. The vote of thanks to Professor Sheen was proposed by Dr. Cawadias, who mentioned that he had lived in Epidaurus during the greater part of his childhood and youth, and, indeed, that his father had been instrumental in discovering the famous health temple. He reminded the audience that one of Sir William Osler's favourite quotations, taken from the work of Sir Henry Maine, was to the effect that, apart from the blind forces of nature, everything that moved us to-day was of Greek origin. The vote of thanks was seconded by Lady Berry, and heartily carried.

AMALGAMATION OF RADIOLOGICAL SOCIETIES.

AT a special general meeting of the Röntgen Society on January 11th it was agreed, with one dissentient, to amalgamate the society with the British Institute of Radiology. The proposer of the effective resolution, Dr. G. W. C. Kaye, said that negotiations between the two bodies had been proceeding for two years. The title of the new organization would be, "The British Institute of Radiology incorporated with the Röntgen Society." There would be no alteration in the character of the work and objects of the society in consequence of the amalgamation. All the present members would be accepted without entrance fee as members of the new body on an expression of their willingness to adhere to the new memorandum and articles of association. A new class of members was proposed in the shape of associates, as it was felt that there was a considerable body of medical men, not sufficiently interested in the subject to seek full membership, but desirous of some connexion with such an organization.

The annual subscription for full members would be raised from its present rate of two guineas to three guineas. In return for the increase the members would have the advantage of the library and other facilities at the Institute's premises in Welbeck Street, as well as an enlarged and improved journal. Provision had been made to ensure the continuance of the Silvanus Thompson Memorial Lecture of the society and the Röntgen award. Dr. A. E. Barclay, in seconding the resolution, said that he hoped the character of the Röntgen Society, whose membership had always included physicists and makers of apparatus as well as medical men, would be fully reproduced in the new body. As an earnest of this the new and enlarged council was to be, as the Röntgen Society's council always had been, half medical and half lay. The chief discussion at the special meeting centred round a provision in the proposed articles whereby the council of the united body may at any time submit for approval to the members a system of classification of members according to qualifications or other distinctions, the members in a particular class to be allowed to use after their names an abbreviated title. This was interpreted by some of the lay radiographers who have been members of the society for many years as likely to result in de-grading to their disadvantage, and their spokesman asked for an explicit assurance that all members would continue in the new body on an equal footing, and that in fairness to the long-established lay radiographers, through whom very largely x rays were introduced to the medical profession, their status would be safeguarded. Dr. Kaye declared that there was no immediate intention to act upon this provision. It was inserted, as things were often inserted in articles of association, so that in some, perhaps remote, eventuality a certain course might be taken without the necessity of altering the articles. As the scheme stood at present lay radiographers, like other members, automatically entered into the membership of the new body. Dr. N. S. Finzi, the president of the society, spoke to the same effect. A motion was, however, persisted in, that with a view to allaying the apprehensions of some members who were well established lay radiographers, the meeting should declare its intention of protecting the professional interests of such members should they be jeopardized by the amalgamation. This was lost by a large majority, but Dr. Finzi from the chair pointed out that it had not been negatived on its merits, but simply on the ground that it was unnecessary in view of the assurances which had been given. The resolution for amalgamation is to be brought forward for confirmation at a further meeting of the society on January 25th.

ANTHRAX AT THE ZOO.

ALTHOUGH the most important single source of loss among captive wild animals is tuberculosis—as Dr. H. H. Scott, the pathologist to the London Zoological Society, showed in a paper recently reported in this JOURNAL[1]—occasionally more spectacular outbreaks are encountered which are of direct medical interest. Thus, for example, in the Edinburgh Zoological Gardens some years ago there were several fatal cases of glanders among the great cats (glanders in carnivores is usually a very acute disease, although chronic in the normal host, the horse), which was traced to an infected horse which had been used for food. In the last few days of last year two of the elephants in the London Zoological Gardens died suddenly from anthrax. This disease is not uncommon in domestic animals in this country, especially in Scotland; and it is very common in Asia, where, in addition to destroying large numbers of domesticated mammals, it is a veritable scourge to elephants—in Burma alone it is estimated that over 5,000 die yearly from this cause. Fortunately the disease has not been previously encountered in the London Gardens, although menageries in other parts of the country have been attacked. Thus, for example, in 1911 Mr. Somers, a veterinary surgeon, reported an outbreak in which four great cats, two polar bears, five other mammals, and a vulture died from acute anthrax, while several other animals showed symptoms of the disease, but recovered.[2] The attack in the recent outbreak in the elephants was very acute, and the animals died within forty-eight hours. The origin of the infection is unknown, but some of the foodstuffs are suspected. Apart from its scientific interest, the outbreak has a definite public health significance, as four of the men who came in contact with the carcasses contracted the disease. Thanks, however, to the very prompt diagnosis of anthrax in the animals by Dr. Scott—he had diagnosed it within an hour of the necropsy—immediate and energetic steps were taken by the authorities of the Zoological Society to prevent the infection spreading and to detect any already affected. All in-contacts were examined, and these four cases were detected at an extremely early stage—long before the malignant pustule had developed its typical form. They were removed to St. Thomas's Hospital, and, under serum treatment, are, we understand, progressing favourably. The premises at the Zoological Gardens have been disinfected, and all steps have been taken to prevent any possibility of risk to the public visiting the gardens. The authorities at the Zoological Gardens are to be congratulated on the prompt steps they took to diagnose and search for anthrax in the animals and in-contacts, and for the energetic measures which they and the Government departments interested in the outbreak put in force to prevent the subsequent spread of the disease. The incident, too, serves to indicate some of the possible dangers from wild animals, and to commend the wise policy of prompt necropsy of all animals which the London authorities have adopted.

[1] BRITISH MEDICAL JOURNAL, December 4th, 1926, p. 1053.

[2] *Veterinary Record*, February 25th, 1911.

THE PREVENTION OF HEART DISEASE.

DR. J. A. NIXON of Bristol has had the opportunity, along with Dr. Phillips, medical superintendent of the Southmead Hospital, of watching the effects of prolonged rest in bed upon several children suffering from rheumatic fever and chorea with early carditis, and has reported the results in a recent number of the *Bristol Medico-Chirurgical Journal*. Dr. Nixon observes that every writer since Francis Sibson, whose article in Reynolds's *System of Medicine* was published in 1877, has advocated rest for the rheumatic heart. Sibson found that cases of rheumatic fever were less often attacked by carditis when kept rigidly at rest, and this the Bristol observers say may be accepted as proved beyond a shadow of doubt. The question to which they particularly direct the attention is as to what happens to patients treated by a rigid system of rest whose hearts are already affected. Although Dr. Nixon has formed the impression that patients so treated escape with less serious damage to the heart, he says that the observations at Southmead did not encourage the hope that a sound heart will result from prolonged rest in bed, even when the child has been in hospital before the very earliest sign of cardiac involvement was observed. In deciding whether a child should still be kept in bed the general and local cardiac conditions must be considered. The general conditions include cessation of pyrexia, abatement of joint pains and choreic movement, and relief of cyanosis or dyspnoea. The local conditions comprise the rate and rhythm of the heart, the position of the apex beat, the size of cardiac dullness and the size of the heart as estimated by x-ray examination, the disappearance of bruit, and the

clearing up of pericardial signs. In spite of the most careful attention to these points he concludes that the physician has little or no control over the result. "One begins to wonder," he says, "whether rheumatic fever, like syphilis and encephalitis lethargica, is a disease which throws out no recognizable signal of arrest, and has no known criterion of cure. We must all have seen the length of time during which choreic movements may persist in Sydenham's chorea without pyrexia or cardiac lesion. Presently an acute pyrexial exacerbation occurs and the heart becomes affected. The disease in such a case would, no doubt, have been regarded as cured if the movements caused by a chance involvement of the corpus striatum had not continued." Dr. Nixon, therefore, raises the question whether a new attack of rheumatic fever is merely a relapse in the course of a single infection. The experience at the Southmead Hospital of trying to stem the progress of rheumatic carditis by a rigid system of rest, such as that advocated by Sir Archibald Garrod, does not inspire confidence in the opinion that by such measures heart disease in adults can be prevented. Dr. Nixon is inclined to associate himself with the warning uttered by Dr. J. A. Glover, during the discussion on rheumatic infection in children, at the Annual Meeting of the British Medical Association in Bath, to the effect that it is rheumatic fever we must study to prevent, and that we really know very little about the etiology of the disease. Rheumatic fever can be, and habitually is, prevented, Dr. Nixon observes, from attacking the children of a certain social grade, seeing that rheumatic fever is practically non-existent in our great public schools. In his view it is probable that nutrition rather than environment is the main factor in preventing attacks and recurrences.

VOCATIONAL GUIDANCE.

THE National Institute of Industrial Psychology[1] was formed some two years ago to provide a scientific association for studying the human factors which enter into industry and commerce, and for applying the results in practice. On behalf of commercial firms it conducts investigations into the effects of movement, rest, lighting, humidity, ventilation, seating, methods of payment, and so forth, and particularly into the value of systematic selection and training of workers. It is an attempt to apply the methods of psychology to everyday work. An experiment is being conducted in the London area by the Institute in collaboration with the London County Council and the Ministry of Labour, aided by a grant from the Carnegie United Kingdom Trust. During the past two years 600 children leaving elementary schools at the age of 14 years have been given vocational advice based on mental and physical tests. The children are followed up so that there may be gathered some judgement of the value of the method in the light of the success of those advised. The tests applied to the children are twofold. There is a general examination based upon the findings of the school teachers which appraises general intelligence, attainment in school subjects, practical ability, and deftness. The special examination by the psychologists estimates ability for clerical work, mechanism, dressmaking, engineering, packing, memory for form and design, attention and concentration. The results are discussed at a conference between the two sets of workers, and their separate recommendations show a very high proportion of general agreement. Proof of the value of these findings and recommendations must be sought for in the after-history of the children. The follow-up is as yet in its early stages, but so far as they go the figures are encouraging. Information has been obtained in 161 cases. Of these 103 are in work of the same or similar kind to that recommended, and 58 in different work. In the former group there are no children who have expressed dissatisfaction, and only 4 have changed their posts more than twice; in the latter group 18 are dissatisfied, and 10 have had from three to eight different jobs in less than a year. If a friendly hint is not out of place, we would suggest that the Institute, or the editor of its future reports, might well study the psychology of its readers in the arrangements of the printing. The paper and type are excellent, but the lines of print extend right across the page, and are eight inches long. Such a length is most uncomfortable and wearing, and by no means conducive to study.

[1] National Institute of Industrial Psychology. Vocational Guidance Experiment. Second report. 1926. 329, High Holborn, London, W.C.1.

RECENT ADVANCES IN THE TREATMENT OF ANAL FISTULA.

IT is said that more reputations are lost over the treatment of anal fistula than in any other department of surgery. It is certainly true that in few conditions is it so difficult accurately to determine the extent of the disease or to forecast the probable duration and extent of the treatment that may be required, for unsuspected pockets and innocent-looking but tortuous side-tracks may render what promises to be a successful operation a complete and exasperating failure. At a meeting of the Subsection of Proctology of the Royal Society of Medicine held on January 12th two new methods were described which would appear to hold out considerable promise of minimizing the chance of unsuccessful operations, and of shortening the prolonged and tedious period of convalescence. Mr. E. C. Norbury and Mr. C. N. Morgan described a means of determining the exact topography of a fistula by the injection of lipiodol followed by stereoscopic *x*-ray photographs. As is well known, lipiodol has already proved its worth in the radiography of spinal tumours and of such diseases of the lungs as bronchiectasis, and owing to the density of its *x*-ray shadow the narrowest fistulous track, with all its unsuspected branchings, is clearly revealed. The technique is quite simple, and the pictures obtained permit a fairly accurate estimate of the extent of operative intervention necessary, and the probable duration of the after-treatment, to be arrived at. At the same meeting Mr. W. B. Gabriel brought forward the suggestion that the after-treatment of fistulae might be materially shortened by the simple expedient of using Thiersch grafts for the granulating wound. Photographs of various stages of a case treated by this method were shown, and it was evident that a considerable amount of time had been saved. If further experience confirms the value of these two procedures, all surgeons will have reason to be grateful to Mr. Norbury and Mr. Gabriel for introducing easy methods of simplifying and shortening the treatment of a tedious and troublesome condition.

CENTENARY OF UNIVERSITY COLLEGE, LONDON.

IN order to obtain further financial assistance for the extension of its buildings, the veteran Sir Philip Magnus on April 27th last delivered an interesting address on the birth of University College, London, one hundred years ago, which has now been printed by the University of London Press (price 1s.). It contains many historical details about the origin of University College, or, as it was first called, London University. Although universities were established in or before the twelfth century in Salerno, Bologna, Padua, and Paris, and although Sir Thomas Gresham in 1548 endowed seven professorships with the intention that there should be a university in London, it is remarkable that no effective steps were taken until 1825, when Thomas Campbell the poet and Isaac

Lyon Goldsmid the banker, who were friends, and often met as members of the Literary Club, advocated the establishment "of a great London University" which should be liberal in the sense of being free to all, irrespective of religious belief; for at that time Roman Catholics, Nonconformists, and Jews were excluded from Oxford and Cambridge. Campbell and Goldsmid lost no time in interviewing Mr. (later Lord) Brougham, and Campbell's famous letter, occupying nearly two columns in the *Times*, appeared on February 12th, 1825. Two years later, on April 30th, 1827, the foundation stone of the present building was laid by H.R H. the Duke of Sussex. When the first working session was nearing its close, and there were more than 550 students, steps were taken to apply for a charter which, *inter alia*, would have empowered the new University to grant degrees. This proposition met with considerable opposition, due to the strong feeling, bordering on contempt, held by many, especially those with orthodox religious views, for "the Gower Street institution." Eventually a compromise was arrived at, and two charters were granted by King William IV—one creating a new and distinct body, to be called the University of London, with power to confer degrees; and the other incorporating the previously existing London University as University College, London, the students of which would be eligible, together with those of other duly recognized teaching bodies, to obtain degrees on passing examinations at the newly constituted University of London. Sir Philip Magnus gives a sketch of the difference between "a College" and "a University," and recalls the circumstances which led up to the passing of the Act of 1871 abolishing all religious tests for admission to the universities.

INFLUENZA.

THE epidemic now under way has begun to influence the mortality rates, although not very seriously. In the great towns of England and Wales the deaths certified as due to influenza, which had amounted to 69 and 86 in the two previous weeks, increased to 172 in the week ending January 8th. The increase in that week was relatively very much greater in London, for which the figures are 16, 17, and 72. The notifications of pneumonia tell the same story—an increase from 1,173 and 1,514 to 2,033 in England and Wales, and from 174 and 193 to 345 in London. In the extra-metropolitan districts the largest proportional increase in pneumonia was in the south-east, but the populous north-western and Yorkshire areas also showed substantial increments. In London the total mortality assigned to pneumonia, bronchitis, and other diseases of the respiratory organs, and to influenza, in the three weeks ending January 8th, was almost the same as twelve months ago—1,159 against 1,135. Some further increase is to be expected. In fact, in the week ending January 15th the deaths from influenza in London increased to 137, and those in the great towns to 326; while London notifications of pneumonia reached 370, and those in England and Wales numbered 1,869. But the present visitation seems to be of a mild type, and bids fair to be less formidable than that of 1922, or even than the milder recrudescence of 1924. We shall not, however, seek to enter the fellowship of the prophets. Indeed, those of the fellowship who do forecast epidemics confine themselves to dates of occurrence, and offer no opinions as to duration or severity. The *Times*, we notice, is still a staunch supporter of Dr. Brownlee's thirty-three weeks' cycle, but we are surprised that none of the newspaper paragraphists have come upon Mr. Spear's simpler, and on the whole more successful, rule, which is described and illustrated in the annual report of the London County Council for 1925 (Volume iii, pp. 34-37). Mr. Spear's rule for predicting the date of the next maximum is as follows. Subtract the serial number of the week in which a maximum of influenza mortality occurs from 34½, then double the remainder will be the number of weeks to the next maximum. For instance, in 1921 the week of maximum influenza in London was the thirteenth. Subtracting from 34½ we have 21½. Hence we should expect the next maximum in forty-three weeks. Actually the next maximum occurred forty-one weeks later, in the second week of 1922. In thirty-three years Mr. Spear's rule gave a result correct within four weeks twenty times, while Dr. Brownlee's method only scored eight "inners." Mr. Spear remarked that "there are several instances in which the hypothesis fails, but with the reservation which thus attaches to any particular forecast it may be noted that a prevalence of influenza is indicated about the end of 1926." This has been verified, and his rule, which would give a maximum of mortality about the third week of the year (in London), is not likely to be far wrong. This balancing of epidemics about the thirty-fifth week of the year has been noticed in the data for Copenhagen as well as in London experience; the rationale of it is difficult to grasp. Mr. Spear's method stands on a quite different basis from Dr. Brownlee's. Dr. Brownlee reached his interval by a periodogram analysis of several years' data, and the result is an average result; he did not take each successive epidemic as a new starting-point. It must also be said that Mr. Spear's criticism of Dr. Brownlee's process, quoted in the London County Council report (p. 36) ignores Dr. Brownlee's quite cogent rejoinder (see the Ministry of Health's *Report on the Pandemic of Influenza, 1918-19*, p. 576). Dr. Brownlee's object, illustrated in several of his other researches, was a much more philosophical one than any sporting attempt to "spot winners." He has always looked at the secular problem of an epidemic disease as a whole, seeking a general description of its evolution and evidence of changes in the *tempo* of that evolution. Since for influenza the statistical record is short and exceedingly imperfect, it was not to be expected that a complete elucidation would be obtained. Dr. Brownlee's attempt remains, however, as a good example of the method that must, when data are sufficient, lead us to important discoveries. For merely "spotting winners" we should give preference to Mr. Spear's plan, although, were betting on dates as common as in the eighteenth century, we should not expect to make more than a moderate competence by its use.

INTERNATIONAL CITATION.

WE have recently received from Professor Léon Bernard, writing from the Institut d'Hygiène of the University of Paris, a letter in which, after thanking us for the terms in which his book on pulmonary tuberculosis was noticed in these columns, he protests against one sentence in our review. Having said that though Professor Bernard was essentially a product of the French school, he yet did not carry "his ideas to the degree of exclusivism that is so annoying in some of his compatriots," the review continued: "It is true that he has been rebuked by the Americans for neglecting to take notice of their work." But we pointed out that in his preface he said that he had not set out to write a treatise, but rather to record his own opinions, founded on the investigations of himself and of his pupils. The essential passage in Professor Bernard's letter may be translated as follows: "I desire to challenge the general criticism made against French authors that they neglect the opinion of foreign writers. If you will compare the large French treatises with similar works published by English, American, or German writers you will not fail to agree with me that this criticism is unjust, and that French authors cite foreign writers much more often than they are themselves quoted by their colleagues in other countries." We are very glad to publish this disclaimer on Professor Bernard's authority.

Union of South Africa.

[FROM OUR CORRESPONDENT IN CAPETOWN.]

MEDICAL FACULTY OF CAPETOWN UNIVERSITY.

THE medical faculty of the University of Capetown has greatly increased its activities in recent years, and the following account of the conditions under which medical degrees are granted by the University will be read with interest.

Three degrees are granted—namely, Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Master of Surgery (Ch.M.), and Doctor of Medicine (M.D.). The University also grants a post-graduate diploma in public health (D.P.H.).

The entrance examination for the degree of M.B., Ch.B. is the matriculation examination, conducted until 1917 by the University of the Cape of Good Hope, and now by the Joint Matriculation Board. Students may enter at the commencement of the first term (March), which is the method advised, or at the commencement of the third term (July). Registration as a medical student is obligatory. The curriculum occupies six years from the date of registration as a matriculated student; alternatively, the degree of B.A., embracing certain qualifying courses, may be taken, and thereafter the final four years of the curriculum for the degree of M.B., Ch.B. Medical students attend the Somerset Hospital, where clinical instruction is given by the honorary medical staff. A fee of ten guineas entitles a student to a perpetual ticket to the hospital. No candidate can be admitted to the degree of M.B., Ch.B. until he or she has attained the age of 21 years. University residences for both men and women students are provided. Students not living with their parents or guardians must satisfy the authorities that they are residing at houses approved by their parents or guardians.

Curriculum for the Degree of M.B., Ch.B.

The courses for the first professional examination and the minimum number of hours to be allotted to lectures and practical work in the several subjects are: botany special, 60 hours; zoology special, 80 hours; physics special, 120 hours; inorganic chemistry special, 150 hours; anatomy I, 200 hours. The courses in anatomy I, physics special, and inorganic chemistry special extend over four terms, those in botany special and zoology special over two terms.

The courses for the second professional examination are: organic chemistry special (extending over two terms), anatomy II, physiology and physiological chemistry I. The courses for the third professional examination are: bacteriology, pathology, and pharmacology; a course in psychology is also required. In the final professional examination the courses are: medicine, surgery, obstetrics, and gynaecology, public health, medical jurisprudence, and toxicology, and courses in the following special subjects: ophthalmology, psychological medicine, venereal diseases, skin diseases, diseases of the ear, nose, and throat, and diseases of children.

In the fourth year the courses for candidates who begin at the commencement of the academic year are: (*a*) in the first two terms, principles and practice of surgery, clinical surgery (surgical dressership), revision anatomy, obstetrics, anaesthetics; (*b*) in the second two terms, surgery, clinical surgery, obstetrics, practical and clinical obstetrics, anaesthetics, and medical jurisprudence and toxicology.

The courses for the fifth year are: (*a*) for the first two terms of the calendar year, principles and practice of medicine, clinical medicine, gynaecology, practical and clinical obstetrics, public health, and vaccination; (*b*) for the second two terms, principles and practice of medicine, clinical medicine, practical and clinical obstetrics, gynaecology, infectious diseases, psychological medicine, vaccination, and leprosy.

In the sixth year the courses are: clinical medicine and clinical surgery, operative surgery, practical gynaecology and practical obstetrics (not fewer than fifteen cases), ophthalmology, diseases of the ear, nose, and throat, psychological medicine, diseases of children, venereal diseases, medical ethics, skin diseases, and, in addition, optional courses in tropical medicine and radiology.

The final professional examination consists of two parts. Part I: (*a*) medical jurisprudence and toxicology, and (*b*) public health. These may be taken separately. Part II: (*a*) medicine, (*b*) surgery, (*c*) obstetrics and gynaecology, (*d*) ophthalmology, psychological medicine, venereal diseases, skin diseases, diseases of the ear, nose, and throat, and diseases of children. A candidate may not enter for the second part of the final professional examination unless he has completed the first part. Before being admitted to the degree of M.B., Ch.B. each candidate is required to subscribe to the following declaration: "I, A.B., solemnly declare that as a graduate in medicine of the University of Capetown, I will exercise my profession to the best of my knowledge and ability for the good of all persons whose health may be placed in my care, and for the public weal; that I will hold in due regard the honourable traditions and obligations of the medical profession, and will do nothing inconsistent therewith; and that I will be loyal to the University and endeavour to promote its welfare and maintain its reputation."

MEMORIAL TO THE LATE DR. S. B. SYFRET.

New wards for non-European patients, forming a memorial to the late Dr. Stephen B. Syfret, who was accidentally drowned while bathing at Hermanus in February, 1919, were opened at the Rondebosch and Mowbray Cottage Hospital on October 25th, 1926. The wards provide accommodation for six male and six female patients, and with bathrooms, etc., form a self-contained block connected with the main hospital building by a passage way. Running the whole length of the new block is a stoep wide enough to permit of beds being brought out. The cost of the new extension was £3,466; half of this amount was raised by public subscription, the other half being met by the Cape Hospital Board. In the passage way is a large photographic portrait of the late Dr. Syfret, and a mural tablet with the following inscription:

"Dedicated to the memory of Dr. Stephen Syfret, who in his lifetime was a member of the honorary medical staff of the Rondebosch and Mowbray Cottage Hospital. This building was erected by his many friends and the Cape Hospital Board as a memorial to his life and work, especially amongst the poor."

After this tablet had been unveiled by Mrs. S. B. Syfret, Mr. A. B. Reid, on behalf of the memorial committee, handed over the new block to the Cape Hospital Board, on whose behalf it was accepted by Mr. M. C. Vos, chairman. Mr. Reid referred in sympathetic terms to the noble work of Dr. Syfret, both as a doctor and as a man, work which had commanded from all sections of the community the highest respect and affection. Dr. Syfret, he said, had in a special sense been the friend of the poor, both white and coloured, and his death was an irreparable loss. After his untimely end it had been felt that his memory should be perpetuated by some practical token of their regard, and this addition to the hospital where he had laboured and had been loved was the outcome.

PORTRAIT OF THE LATE DR. A. REITH FRASER.

In recognition of the invaluable services rendered to the Cape (Western) Branch of the Medical Association of South Africa (British Medical Association) by the late honorary secretary, Dr. A. Reith Fraser, it was decided by the council of that body to procure a suitable likeness of Dr. Fraser to be hung in the rooms of the Association in Capetown. As the result of the efforts of a small subcommittee to which the work was entrusted, an excellent photographic enlargement of a portrait of Dr. Fraser was placed in position in time for the annual general meeting last November. In addition to the portrait, some seventeen originals of Dr. Fraser's pen-and-ink caricatures of his colleagues in the profession have been framed and hung in the vestibule of the Association's rooms. The expense involved was met by small individual subscriptions on the part of members of the Branch.

PRESENTATION TO DR. G. W. ROBERTSON.

A pleasant little ceremony took place at the Government Bacteriological Laboratory in Capetown on November 23rd, 1926, when Dr. G. W. Robertson, on the eve of his retirement from the office of Government pathologist, was presented with a cheque. Dr. Hugh Smith, in making the presentation, explained that it was a token of the very high esteem in which Dr. Robertson was held by his colleagues all over the Union and in Rhodesia and the South-West Protectorate, a large number of whom had taken part in the movement. Had it not been for Dr. Robertson's express wish to make the ceremony as informal as possible, there would no doubt have been a large attendance. Dr. Hugh Smith concluded by speaking of the good relations that had always existed between Dr. Robertson and the members of the profession, and by giving him the best wishes of the subscribers for the future.

Dr. Robertson qualified in London in 1893, and came to South Africa four years later as assistant bacteriologist to the Health Institute, at that time established at Grahamstown. In 1901 he was transferred to Capetown, and since then had occupied the post which he now vacates. He retires on pension at his own request, although he has been asked repeatedly by his department to continue in office. His many friends will be glad to learn that he has not

severed his connexion completely, for his part-time services will be retained by the Government in the capacity of consulting pathologist to the vaccine station at Rosebank. The remainder of his time will be fully occupied in agricultural activities on his beautifully situated farm near Stellenbosch.

THE CAPE HOSPITAL BOARD.

The reconstituted Cape Hospital Board came into office on October 26th last. Its membership under the new Provincial Ordinance has been reduced from thirty-six to eighteen. The following persons constitute the new Board:

Hospital Representatives: The Rev. A. P. Bender, Messrs. W. D. Hare, A. E. Adams, E. Graham Green, and Mrs. Duncan Baxter.
Divisional Council Representatives: Mr. J. Michau, Chevalier Callanan, and Dr. C. J. Juritz.
City Council Representatives: Mr. W. James and Mrs. H. Horwood.
Wynberg, Durbanville, and Simonstown Municipalities: Mr. H. F. East.
Administrator's Nominees: Mr. M. C. Vos, Dr. P. M. Daneel, and Mr. C. H. Dickinson.
Joint Peninsula Institutions Representative: Dr. F. M. Morris.
Representatives of the Honorary Medical Staffs of the Cape Hospitals: Professor A. W. Falconer, Dr. Julius Petersen, and Mr. H. A. Moffat.

The last-named three were elected by ballot by the honorary visiting medical officers of the New Somerset Hospital, the Woodstock Hospital, Rondebosch and Mowbray Cottage Hospital, the Victoria Hospital (Wynberg), and the Peninsula Maternity Hospital.

India.

RABIES IN SOUTHERN INDIA.

THERE was a slight increase in the number of patients treated in the antirabic department of the Pasteur Institute of Southern India, at Coonoor, during the year ending February 28th, 1926; the total was 572, as compared with 489 in the previous year. Antirabic vaccine was also issued to local centres for 4,072 persons, as compared with 4,402 in the previous return. The percentage of reports of the progress of the patients treated has improved very much, and it is evident that greater care is now taken to detect cases of rabies. Registration of deaths from this cause has been in force in the Madras Presidency since 1913, and in 1922, 1923, and 1924 there was a pronounced increase, which was attributed to the interest aroused by the issue of antirabic vaccine to district headquarter hospitals. Statistics collected over many years at the Pasteur Institute show that, on an average, death occurs in one out of thirty-six persons bitten by rabid animals treated with antirabic vaccine, as compared with one out of sixteen not so treated. It appears from the figures available that between 1913 and 1924 at least 60,000 persons in the Madras Presidency were bitten by rabid animals, but only about 10,000 of them received antirabic treatment. Eight scientific papers dealing with research work of various kinds done in the Institute were published during the year in the *Indian Journal of Medical Research*.

OUT-PATIENT LEPER CLINICS IN BURMA.

In response to an appeal by the Burma Branch of the British Empire Leprosy Association, subcommittees have been formed in nearly every headquarters town throughout the province, and over 57,000 rupees have been collected. In his report on the public health administration of the province, Lieut.-Colonel E. Bisset, I.M.S., director of public health, describes how a public meeting in connexion with the appeal led to a greatly increased attendance for out-patient treatment at the St. John's Leper Asylum, which is three miles out of Mandalay, and Dr. Peacock, the medical officer of the asylum, decided to open a small out-patient dispensary in the town for diagnosis and early treatment. At this dispensary forty-four patients were treated between May 1st, 1925, and March 31st, 1926; eight of them were too far advanced for dispensary treatment and were advised to enter the asylum. As the result of the first year's work Dr. Peacock concludes that out-patient leper clinics, if cautiously conducted, would be very popular in Burma, being within easy reach of the people and distinct from existing asylums, so that there would be no danger of loss of employment resulting from treatment. He thinks that such dispensaries would make it possible to get into touch in course of time with the entire leper population, which could not happen if treatment was limited to resident leper institutions. Such clinics would not be expensive to maintain, and would serve as centres for the supply of information about leprosy to those infected as well as to the healthy members of the public. It was reasonable to hope that patients would come for treatment in the earlier and more curable stages of the disease. Dr. Peacock adds that the clinic has brought to light the frequency of leprosy among Europeans and Anglo-Indians.

PROGRESS OF VACCINATION IN INDIA.

Reports on vaccination work during the last three years in the Central Provinces, the Presidency of Madras, and the Province of Assam indicate that, although there has been some increase in the number of vaccinations, yet the proportion of the vaccinated population is still so low as to call for greater efforts along educational and administrative lines. Revaccination in particular is neglected, and in some districts the indifference of the vaccinators is held to be largely to blame. While vaccination is compulsory in some towns, many rural areas escape, although the opposition is less marked among villagers. In Bihar and Buldana local schoolmasters have been trained as vaccinators with very good results, and it is suggested that this procedure might well be more general. Major T. D. Murison, I.M.S., director of public health in Assam, strongly urges that each municipality should be provided with a well equipped small-pox hospital, and that the disease should be made notifiable in rural areas where it is prevalent. In Madras, where the health department was reorganized in 1923, there has been a considerable increase in the number of health inspectors and first and second class vaccinators; the probationary class is gradually disappearing. Major A. J. H. Russell, I.M.S., director of public health, refers to the urgent need for compulsory vaccination throughout the presidency, and of fuller powers being given to the district and municipal health officers. The registration of vital statistics is still imperfect, but in spite of these drawbacks very considerable progress has been made during the three years in vaccination in Madras, so that the hope is entertained that small-pox will gradually be brought under control. There is still need for more prompt notification of outbreaks, since many deaths occur before preventive measures can be taken. Lanoline lymph has now been replaced by glycerin lymph, and successful vaccinations have reached the high figure of nearly 95 per cent. The small-pox mortality in Madras steadily declined during the three years. In his annual report on vaccination in the Punjab for the year 1925-26, Lieut.-Colonel W. H. C. Forster, I.M.S., director of public health, reports a great increase of vaccination in the province during the last three years. He states that vaccination is the only protection the general population has against the disease, since small-pox hospitals do not exist, except in Simla, and systematic segregation and disinfection are not attempted. He hopes that still further progress will follow when each district has been supplied with a medical officer of health. The education of public opinion by systematic propaganda has proved extremely valuable, but he is pessimistic about the possibility of opening the eyes of municipalities to their responsibility in this connexion.

MADRAS GENERAL HOSPITAL.

At the Madras Government General Hospital 67,689 out-patients and 9,916 in-patients were treated during 1925; there was an increase of non-European patients and a decrease of Europeans as compared with the previous year; surgical operations numbered 2,974, or 504 more than in 1924. Clinical instruction was given to 251 students. In his report of the work of the hospital during 1925 Lieut.-Colonel M. N. Chaudhuri, I.M.S., gives a full statistical account of the administrative side, while the three surgeons

and the three physicians supply clinical details, including brief notes of the more interesting cases. Comment is made on the rarity of Pott's fracture among Indians, only 10 cases having been admitted during the three years 1923-25, as compared with 119 cases of fracture of both bones of the leg and 101 cases of fracture of the femur treated in this period. The *X*-Ray Institute is being enlarged, and a considerable amount of new apparatus, including a deep *x*-ray therapy outfit, a "radiostat" high-tension transformer, tungsten arc and mercury vapour lamps, and a new diathermy apparatus, has already been installed; three whirlpool baths will be added shortly.

University of Bombay.

The *Bombay University Calendar* for the two years 1925-26 and 1926-27 indicates the steady progress that is being made in the spread of educational facilities in this part of India. A list is given of the twenty-six colleges now affiliated to the University—namely, Elphinstone College, Bombay; Deccan College, Poona; Wilson College, Bombay; St. Xavier's College, Bombay; Gujarat College, Ahmedabad; Rajaram College, Kolhapur; Baroda College, Baroda; Fergusson College, Poona; Samaldas College, Bhavnagar; Dayaram Jethmal Sind College, Karachi; Bahauddin College, Junagadh; New Poona College, Poona; Karnatak College, Dharwar; Maganlal Thakordas Balmukunddas Arts College, Surat; Willingdon College, Sangli; Sind National College, Hyderabad; Hansraj Pragji Thackersey Arts College, Nasik; Sydenham College of Commerce and Economics, Bombay; Secondary Training College, Bombay; Poona Agricultural College, Poona; College of Engineering, Poona; Nadirshaw Edulji Dinshaw Civil Engineering College, Karachi; Government Law College, Bombay; Indian Society's Law College, Poona; Grant Medical College, Bombay; and Seth Gordhandas Sunderdas Medical College, Bombay. At the convocation for conferring degrees on August 18th, 1926, the Chancellor, the Right Hon. Sir Leslie Wilson, G.C.I.E., presided, and the Vice-Chancellor, Sir Chimianlal H. Setalvad, K.C.I.E., delivered an address which is printed in full in the *Calendar*. He emphasized the importance of concentrating the colleges and hostels in a university quarter. The provision of university extension work among adults was also desirable, and a college of technology was required to include mechanical and electric engineering, textile industries, and applied chemistry.

Ireland.

Clean Milk.

In the third of a series of articles specially contributed to the *Irish Independent*, Professor J. W. Bigger, M.D., of Trinity College, Dublin, described pasteurization as a process in which milk was heated to a temperature sufficient to kill the greater number of bacteria present. The correct method was to heat the milk to 145° F. for half an hour, and then to cool it rapidly. Almost all the bacteria capable of causing diseases, including tuberculosis and typhoid fever, were killed, but it did not render safe a dirty and badly contaminated milk. It also killed the bacteria which caused milk to sour, and so a pasteurized milk kept sweet longer than if untreated. The objections to pasteurization were that it interfered with the digestibility of milk, and it destroyed, either partially or completely, the vitamins so essential for growing children. If pasteurized milk was used the vitamins lacking in it must be replaced by the addition of other foods containing them, such as cod-liver oil and fresh fruit. Pasteurization was improper if used, as too often it was, to render saleable a milk which had deteriorated, to mask careless methods, or as a substitute for the cleanliness which ought always to be exercised in the collection of milk. The hygienist could not countenance pasteurization by a dealer who purchased milk from farmers at a distance, who made no investigation of the conditions under which the milk he pasteurized was produced, and who paid the same price for clean as for dirty milk. Milk should be protected from contamination from the farm to the consumer's house, and the most satisfactory method of achieving this was to supply it in bottles filled and sealed at the farm. Properly carried out, bottling was excellent, but if badly done it was dangerous. No one should be permitted to bottle milk unless he had proper plant for the thorough cleansing and sterilization of his bottles; to put milk into unsterile bottles was criminal folly. Legislation was necessary for grading milk, since at present the terms "Certified" and "Grade A" were unprotected and meaningless. A good judgement of the quality of milk was given by noting the length of time it kept sweet. Good milk would remain sweet for several days, and any milk which soured within twenty-four hours, without being kept at a warm temperature, was dirty. Milk must be protected against contamination in the home by being kept in the bottle until required or in a jug covered with a plate to keep out flies and dust. Every vessel used for milk should be washed, first with cold water, then with hot water and soda, and finally scalded with boiling water. Jugs used for milk should be plain, without crevices, inside or out, where dried milk, containing millions of bacteria, might lodge. Milk should always be kept in the coolest part in the house, and the bottle or jug be placed in a large basin filled with the coldest water available; this should be replaced by fresh water when it became warm. All these precautions were necessary, whether the milk was raw or pasteurized. If these conditions were fulfilled, and the milk became sour, it was certain that it had been contaminated by dirt. Those in Ireland who desired further information would find the Irish Clean Milk Society ready and anxious to supply it.

Ulster Medical Society.

A meeting of the Ulster Medical Society was held in the Medical Institute, Belfast, on January 13th; in the absence of the president, Dr. Nolan, the chair was taken by Dr. Loughridge (Whitewell). After routine business, the chairman proposed the following resolution, which was seconded by Dr. O'Flaherty (Belfast), and carried with acclamation:

> The Ulster Medical Society desires to place on record the pleasure and appreciation of its Fellows and members that the honour of Knighthood has been conferred by His Majesty the King upon Dr. Thomas Houston, a past-President of the society, in recognition of his invaluable services to scientific medicine. The council unanimously recommends that the name of Sir Thomas Houston be added to the list of honorary Fellows of the society.

The meeting was purely a clinical one, and a number of interesting cases were shown by Dr. F. M. Allen, Professor Fullerton, Mr. H. P. Hall, Mr. S. T. Irwin, Dr. R. Marshall, Dr. Ivan McCaw, Mr. R. J. McConnell, and Mr. G. R. B. Purce. Dr. Marshall's exhibit of eight cases of congenital lues of varying types included one resembling pernicious anaemia, one with spastic paraplegia and mental deficiency, one resembling osteo-arthritis, and one with classical teeth and enuresis, all improved by arsenic treatment. The exhibitors demonstrated their several cases with the aid of charts, *x*-ray photographs, and typed histories.

Scotland.

Vital Statistics for Glasgow in 1926.

A HEALTH bulletin issued by the Glasgow Public Health Department shows that the number of deaths recorded during the past year in the city was 15,626, as compared with 15,332 in 1925, representing a death rate of 14.2 as against 14.0 per 1,000 for the previous year. The death rate from tuberculosis of the lungs was the lowest yet recorded, being 0.85 per 1,000 of the population, while the rate for 1925 had been 0.92. With regard to other forms of tuberculosis, the number of deaths had been 320 for 1926 as against 395 for 1925, death rates respectively of 0.29 and 0.32 per 1,000. It would thus appear that non-pulmonary tuberculosis is tending to be less severe in type, probably in consequence of the improvements in

facilities for treatment made during recent years. The infant mortality rate for the year was 103 per 1,000 births, as compared with 102 in 1925 and 119 in 1924. The year 1926 showed the third lowest infant mortality rate yet recorded, despite the fact that there had been a severe epidemic of measles. The births registered during the year were 24,394, giving a rate of 22.3, which was 0.9 lower than the rate for 1925.

EXTENSION OF PERTH INFIRMARY.

A new maternity block at Perth Royal Infirmary has been erected and equipped, at a cost of about £15,000, by Lord Forteviot, and was opened on January 11th. The new building is one of the first separate maternity institutions to be erected in connexion with a hospital in Scotland, and is a self-contained unit, situated to the north of the infirmary. The one-story building contains two large wards of eight beds each, with separate special side wards, two containing one bed each, and two with two beds, thus accommodating in all twenty-two patients. All the wards face south, the large ones being placed at either end of the building and having windows on three sides. Adjoining one of them is a large room for cots; additional accommodation includes a lecture room, linen room, waiting room, and an examination room. A pillared verandah, with a glass roof, extends nearly the whole length of the building, and the wards connected with it, by means of French casements opening to the floor. At the north side of the building is placed the theatre, lighted from the north by a window extending almost the whole length of the wall, and by a large roof light; adjoining rooms for sterilizing and the preparation of dressings are provided. The building is centrally heated by radiators; all the wards have open fire-places, and the ventilation is entirely modern. With the opening of this maternity unit Perth will become a training centre for qualification for the C.M.B. certificate.

THE PROBLEM OF EVOLUTION.

The first of a course of ten weekly lectures on evolution was delivered by Professor J. Y. Simpson in the Department of Natural History at Edinburgh University on January 12th. The course is intended to be a continuation of a series of lectures on the philosophy of natural history started in 1886 by the late G. J. Romanes and continued by him for five years; later on they were resumed by Dr. A. D. Darbishire, lecturer in genetics, who unfortunately died in 1915. After a consideration of the meaning of the term "evolution," Professor Simpson gave an historical review of various ideas on evolution which had been advanced from the time of the early Greek philosophers to the close of the eighteenth century. All these ideas had offered only the alternatives of transformism and creationism, and as the former conception grew in exactness the influence of the latter waned. Examples were given of popular notions in regard to transformism, such as that of the transformation of the barnacle into the barnacle goose, as related in the work of Silvesten Giraldus Cambrensis (1187). The transformist's view of the sixteenth century was definitely stated by Sir Walter Raleigh in a passage occurring in his *History of the World* (1614). Leibnitz's law of contiguity and unity had created a favourable atmosphere for the teaching of transformism. The doctrine of descent with modification from previously existing forms was, Professor Simpson said, more surely founded now than ever before, but great uncertainty had recently developed as to the method of evolution and the factors involved in it. The problem was now seen to be much more complex than was originally supposed. The doctrine of descent was an induction from a large number of facts whose basis continually broadened and so became more secure.

TRAINING THE BLIND.

The annual social meeting of the Mission to the Outdoor Blind for Glasgow and the West of Scotland, held in St. Mungo Hall, Glasgow, was attended by some nine hundred persons with defective eyesight. Dr. A. S. McGregor, medical officer of health for the city, presided, and in the course of an address stated that negotiations were now in progress for the acquisition of a factory in the north-east part of the city, where it was hoped to provide facilities for training between two and three hundred young blind persons in various forms of manual work. He expressed the opinion that there was still room for a great deal of improvement in the conditions of work and life for blind people. Mr. W. R. Halliday, a member of the home teaching staff of this mission, recently received a notice that the President of the French Republic had, on the recommendation of the Department of Labour, Health, and Social Welfare of the French Republic, conferred upon him a gold medal in recognition of his services on behalf of the blind. The activities of Mr. Halliday have done much to awaken public interest in the methods adopted in other countries for dealing with the blind; and the mission in Glasgow and the West of Scotland has, through his efforts, been brought into close relation with other kindred organizations in France and Germany.

England and Wales.

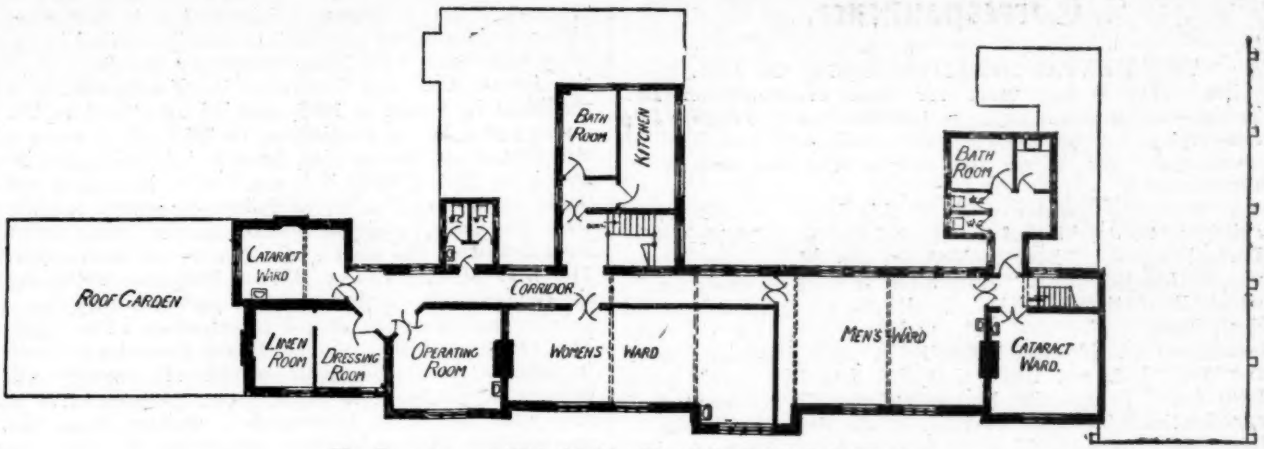
WELSH NATIONAL MEDICAL SCHOOL.

THE special meeting of the court of the University of Wales was held in Shrewsbury, according to notice, on January 14th, but did not arrive at a decision with regard to the draft charter prepared by the court for the incorporation of the Welsh National School of Medicine as an independent school of the University. The attendance of members from South Wales was good, but that of members from North and Mid Wales was, it is reported, meagre. The adoption of the petition to the Privy Council embodying the terms of the new charter proposed by the University Court was moved by the Hon. W. N. Bruce and seconded by Alderman William George. The grounds for the dissent of University College, Cardiff, were developed by Principal Trow, who moved an amendment, seconded by Dr. Rocyn Jones, to refer the matter back to the council of the University. Principal Trow repeated the arguments against the establishment of the School of Medicine as a separate unit, and reinforced them by reading the answer of Mr. Alexander Grant, K.C., to certain questions submitted to him by the college. Mr. Grant held that in the draft charter the council of the University had exceeded its powers, and that it could not, under its present charter, or under the suggested altered charter, engage directly in teaching work or set up a school or schools under its direct control for the purpose of providing education in any subject; the proposal also, he considered, infringed the rights of the college under its charter. Mr. Grant concluded by advising that the matter was one for settlement, and that the college council should consider carefully any reasonable proposal that the University might put forward. A vote was taken by ballot, and the amendment carried by 53 votes against 48. It was understood that negotiations would be continued between the council of the University and the college, and it was subsequently decided that their result should be brought before the July meeting of the University Court.

AN OPHTHALMIC CLINIC.

The Coventry and Warwickshire Hospital.

Adjacent to the Coventry and Warwickshire Hospital is the Sir Thomas White School for Girls, a large building which during the war was used for the accommodation of wounded soldiers, and for the eye department, which was housed on the ground floor. During the period of financial depression which followed the war the whole block was closed, and for four years eye cases were treated in the general surgical wards. When the depression passed away the building was remodelled and a new lavatory block added. The ground floor was used for medical wards and for maternity work. The upper floor was rearranged and adapted for the eye department, and was opened for cases



The Coventry and Warwickshire Hospital: Ophthalmic Wards.

on March 1st, 1926. Sufficient time has now elapsed to show that it is well adapted for its purpose.

We are indebted to Mr. T. Harrison Butler, ophthalmic surgeon to the hospital, for the following description of the ophthalmic clinic, and for the block plan by which it is illustrated.

The operating theatre is floored with "parvino pavement," and the walls are enamelled dark green. Excellent illumination is given by a large side window with a south aspect. The operations are all performed early in the morning, so this aspect is satisfactory. A blind outside the window enables the theatre to be darkened for discission operations. The majority of the operations are carried out under a Rayner triple-beam lamp, which concentrates three beams upon the eye and avoids shadows. A Weiss point-o'-light projector is employed during discission. A Mellinger ring giant magnet is used for the extraction of steel fragments from the interior of the eye—a somewhat frequent operation at Coventry. Adjoining the theatre is a linen room and a dressing room for the staff. No one is admitted to the theatre who is not wearing special shoes.

The following table shows the number of patients treated during 1926.

Number of Patients treated during 1926.

Foreign bodies	3,429
New out-patient cases	1,667
Out-patient attendances	3,475
In-patients from March 1st to December 31st ...	288
Operations in theatre, March 1st to December 31st	231
Total attendances, including foreign bodies ...	6,904

There are four wards—including large male and female wards, and two small wards; these are used as occasion dictates as cataract wards or for private patients, who are admitted under two schedules of fees, which include the fee of the surgeon, which is seven or fourteen guineas according to the means of the patient. This arrangement has worked well. The wards, which are enamelled white, are lighted by a row of windows facing south. As far as possible those patients whose eyes are bandaged occupy the beds under the window, and no complaints have been made of discomfort from glare. At night the wards are illuminated by indirect light reflected from the white ceiling.

There are two beds in the male cataract ward, and nine beds and one cot in the large male ward. The large female ward contains eight beds and four cots. The small female ward has one bed and one cot. It opens by a French window on to a roof garden, where in suitable weather the children sleep and during the day have the advantage of sunshine. It is proposed later on to build a roof over this garden so that extra beds can be accommodated.

The out-patient department consists of an examination room opening out of the general waiting hall and a large dark-room about thirty feet long. This length allows the refractions to be done without the use of cycloplegics, which are used only for children and for difficult adult cases. It is furnished with a slit-lamp, a Lister daylight illumination perimeter, and suitable testing lenses and standard illumination test types.

The whole of the department, both in- and out-patient, is under the charge of one sister, who has her own nursing staff. This plan leads to co-ordination of the two departments and to greater efficiency.

Developments at Stockport Infirmary.

A new orthopaedic department at Stockport Infirmary has been built and equipped at a cost of £9,000; it was opened on January 13th by Lady Sheffield, one of the governors. The new building, which was urgently required to relieve the crowded state of the out-patient department, and to deal more effectively with the large number of crippled and deformed patients, has been erected adjoining the nurses' home at the back of the out-patient department. It includes a large room for massage, and good accommodation for electrical treatment and ultra-violet light therapy. The department is fully equipped with up-to-date apparatus, and there is a gymnasium for Swedish remedial exercises. Additional bedrooms for the staff have been constructed on the upper story of the building, thus supplying a much-needed extension to the nurses' home. It was stated at the opening ceremony that since 1917 the number of cases treated at the infirmary had increased by 50 per cent. Lady Sheffield said that Cheshire had already opened a number of after-care clinics for children, and it was hoped to establish several more in parts of the county where it was not possible to provide after-care treatment in connexion with hospitals. The cost of the new department has been met by voluntary donations, for which an appeal was issued last June. A large percentage of the patients treated will be crippled and deformed children.

Central Midwives Board.

The Central Midwives Board at its meeting on January 6th, when Sir Francis Champneys was in the chair, received with regret the resignation of Miss M. O. Haydon, and recorded its appreciation of her services. In response to a request from the guardians of Newcastle-on-Tyne the Board agreed to continue its approval of Dr. Haslam as lecturer until March 31st, 1928. The Board considered that this would give the guardians ample opportunity to make arrangements for the pupils of the Wingrove Hospital to attend courses of lectures elsewhere. In reply to a letter from the secretary of the Midwives Institute, the Board stated that the use of the approved form for keeping ante-natal notes was obligatory, but that the existing stock might be worked out subject to the approval of the local supervising authority. The Board declined to undertake to send to the council of the Midwives Institute directions or orders for local supervising authorities, but promised to forward any that in its judgement might be helpful. The Board agreed that the London County Council should have the right to send two representatives to any conference of representatives of local supervising authorities under the Midwives Act which the Board might convene.

Correspondence.

THE MENTAL DEFICIENCY BILL OF 1926.

SIR,—May I beg space for some comments on Dr. Tredgold's important letter in the JOURNAL of January 8th concerning the bill which was withdrawn, rather than abandoned, just before the end of the last session of Parliament?

1. With the greater part of this letter, which refers chiefly to the working of the Mental Deficiency Act of 1913, I wholly agree. I have, indeed, for several years been convinced that the words "from birth or from an early age," which limit the definition of all persons proposed to be dealt with under the Act, had, as a matter of fact, occasioned considerable difficulty in administration under the Act. I do not think that this difficulty should have been found insuperable by medical men in the matter of certification; but some revision of the definition seems to have been necessitated even from a legal point of view alone.

2. I agree, further, that some such alteration as is contained in Section I, Clause (2) of the proposed new bill should be made, especially if it should still be deemed desirable that the present hard and fast distinction between the "lunacy" and "mental deficiency" Acts should be preserved. But before considering this clause as it stands in the draft bill I wish to emphasize my accord with Dr. Tredgold when he says, in the second paragraph of his letter, that in his experience (which has been very wide) of the working of the Act of 1913 he had "never known, or heard of, a single instance in which a person has been dealt with under it who was not in need of supervision." The need of the Act is clearly of an opposite kind. I have no doubt that most adverse criticisms of it have been mainly inspired by imperfect knowledge of facts, and a kind of obsession by the vague phrase "the liberty of the subject."

3. In considering the chief proposed alteration in the bill for 1926, which runs thus: "Mental defectiveness means a condition of arrested or incomplete development of mind, whether innate or induced after birth by disease, injury, or other cause," some important questions arise. In his approval of this clause Dr. Tredgold seems to assume that the aim of a mental deficiency bill is mainly, or at least most, prominently, to protect the several classes of persons described: to be, as it were, the "charter of the feeble-minded"; and thus would regard the interests of the community at large, such as concern, for instance, the harm done by many feeble-minded persons, as of somewhat secondary importance. And, further, he seems to imply that the present coexistence of one law for the "insane" and another for the mentally deficient must continue. Now the group contemplated in the new definition includes the subjects of arrested or incomplete development of mind, whether innate or induced after birth by disease, injury, or other cause. These words, however, imply a distinction under the appearance of a single group devised for practical purposes: the cases of those with arrested development are indicated apart from those affected by "other causes." Those affected by the other causes, mentioned and unmentioned, are such as suffer from mental disorder or decay arising after the mind has attained to that degree of development which would enable the individual to transact the ordinary affairs of life.

It is to be noted that the new defining clause introduces the consideration of distinct pathological causes in connexion with these two groups; and it appears to follow that a considerable number of the last named group would approach clinically and naturally much closer to the class of mental cases now dealt with under the Lunacy Acts than it does at present. This would probably increase the acknowledged element of difficulty in certification which it is now sought to diminish or remove; and the introduction of the words "or other cause" would form a fresh stumbling-block for critics.

The advisability of avoiding the more or less disputed nature of the various causative elements in the production of cases of mental defect of all kinds, including, of course, all cases needing care and control under both the existing "lunacy" and "mental deficiency" Acts (*for these are all marked by defect of mind*), was fully realized by most of those who dealt with these matters on the Royal Commission for the Care and Control of the Feeble-minded, which published its report in 1908, and led up at last to the production of a bill in Parliament in 1912. It appears to me still that, as in the existing Lunacy Act and in the Mental Deficiency Act of 1913, it is much more important and less liable to cause difficulty, to define the actual condition of those especially requiring control, than to bring under any legal definition the matter of the causes of such conditions. The first Mental Defect Bill of 1912 was withdrawn by the Government, partly because of parliamentary opposition on the ground of its alleged interference with "liberty." The recommendation of the Royal Commission that the jurisdiction over the whole matter of mentally affected persons should be dealt with by one comprehensive authority was, as far as I remember, omitted from the bill on account of considerable opposition by some lunacy authorities at the time. The second bill, of 1913, introduced as its first section the statutory definitions of the various classes to be dealt with, some of which have now led to the proposal of the bill that has recently been withdrawn.

It is chiefly because I have in mind a certain class of mental cases, several of which fall readily under the group which is characterized by Dr. Tredgold as the subject of arrested mental development, but others of which are not clearly classifiable, that I greatly question the substance of the proposed Clause (2) of the first section in the bill of 1926. I am not convinced by Dr. Tredgold that this clause would not apply to adults quite as much as, or more than, that of the Act of 1913. I note that he admits that it would apply to such young persons in whom mental defect has been brought about before the termination of adolescence. In fact, any such bill must apply to adults.

One class of cases I would specially note is that of some criminals, the early lives of whom are often difficult or impossible to trace, but appear closely similar to those whose early history can be traced. It seems clear from Section 5 (*b*) of the new Act that adults, including such persons as have been just mentioned, would be included under the newly proposed definition in Section 1, Clause (2), for it is stated in 5 (*b*), with regard to certain persons: "If the place in which he is being so detained under the order of the court is not a prison or such a place of detention as aforesaid he shall be removed therefrom to a prison, or, *if he is child or young person*, to a place of detention."

This point seems important when the wording of the new legal meaning of it is closely considered; and is of special importance when it is applied, as it must be, if accepted, to the certification of criminals charged with more or less serious crime. There has lately been a great tendency (especially in the United States), which may easily become dangerous, to regard an increasing number of criminals as mentally diseased—defective or insane—who, it is said, should be treated as diseased persons rather than punishable law-breakers; and I would urge that the new definition of "mental defectiveness" is at once too vague and too comprehensive to afford a practicable substitute for the old definition which qualifies "mental defect" as "existing from birth or early years." For this new definition introduces the question of the *cause* of mental defect, and adds to those specified the words "*or other cause*." I think that all cases of mental deficiency or "unsound mind," or "insanity," from whatever cause or causes arising, should, for the benefit of the community at large, as well as of themselves, be dealt with by one legal authority, the nature of each case being decided, as at present, by experts after due examination and observation, and that the old interpretation in the glossary of the existing Lunacy Act—that "lunatics" means persons of unsound mind, or "idiots"—is sufficiently definite and comprehensive to indicate all the mentally affected persons who are now dealt with by legislation, or whom it is desirable so to deal with by any further measures of care or control.

Sound scientific research is revealing more and more

clearly the dependence of mental disorders generally on discoverable physical causes, and thus the practical knowledge of such disorders must increase. The definition, however, of persons whom it is necessary to care for or to control should be made as simple and as intelligible as possible for practical reasons. And I would venture to suggest something like the following as a workable definition for the particular group now generally recognized as cases of "mental deficiency," and specially dwelt on by Dr. Tredgold: "*Mental deficiency means incomplete development of mind, either existing from birth or observed subsequently before the attainment of complete adolescence.*"

I have not touched upon any part of the Act of 1913 other than that of which the bill of 1926 proposes amendment, but I desire to express a hope that a form of words in the stead of "moral imbecile" may be substituted some day for this very equivocal and inaccurate term. Perchance this term might suffer abolition in lieu of correction?—I am, etc.,

London, W.2, Jan. 14th. H. BRYAN DONKIN.

MOYNIHAN PORTRAIT FUND.

SIR,—The retirement of Sir Berkeley Moynihan, Bt., K.C.M.G., C.B., etc., President of the Royal College of Surgeons of England, from the active staff of the University and General Infirmary at Leeds, affords to the general public, to those who have benefited by his skill and knowledge, and to his colleagues in the University and the medical profession, an opportunity of showing their high appreciation of his conspicuous services, not only to surgery, but also to the city of Leeds.

It is suggested that public recognition should take the form primarily of a portrait of Sir Berkeley Moynihan, to be placed in the Board Room of the General Infirmary.

The Moynihan Portrait Fund Committee, representative of public life, having been formed, invites public support, and on its behalf we shall be glad to receive donations. Whilst the smallest subscription would be welcomed, it is suggested that no individual amount should exceed £5. Cheques should be drawn in favour of the Treasurer, Moynihan Portrait Fund, and sent to the Lord Mayor's Rooms, Town Hall, Leeds.—Yours, etc.,

For the Moynihan Portrait Fund Committee,

HUGH LUPTON, *Lord Mayor of Leeds*,
Chairman and Treasurer.
L. R. BRAITHWAITE,
Vice-Chairman.
J. B. BAILLIE,
J. KAY JAMIESON,
T. F. BRAIME,
Members.

Leeds, Jan. 14th.

SMALL-POX IN THE COUNTY OF DURHAM.

SIR,—At a recent conference of medical officers of health in the county of Durham the position in regard to small-pox in the county was discussed and certain resolutions were passed. It was decided that a copy of the report of the conference, including the resolutions, should be sent to medical officers of health, to the press, to the British Medical Association, and to the Society of Medical Officers of Health, urging their unanimous support of the resolution (No. 5) relative to vaccination.

This resolution reads as follows:

"That this conference urges upon the Ministry of Health the importance of amending the Vaccination Acts with the object of making vaccination more general and efficient, as vaccination affords the quickest, most scientific, and most economic means of preventing and arresting outbreaks of small-pox."

One must necessarily sympathize with members of the public health service in Durham, on whom the present long-continued prevalence of small-pox must necessarily have thrown a heavy burden in extra work, worry, and anxiety. As, however, an appeal is being made to the public health service and the medical profession generally to support the resolution, it is necessary and proper that the issue raised should be carefully considered.

Although the wording of the resolution has been drawn in general terms, its object is clear—namely, to press the Government to tighten up the vaccination laws so as to make infant vaccination again compulsory, in fact as well as in theory. At present, of course, vaccination is really only compulsory in name.

How far does the history of compulsory vaccination in relation to small-pox bear out the claims made on its behalf? Briefly the history is as follows: It was in 1853 that vaccination of infants was first made compulsory in this country. In 1867 another Vaccination Act was passed with the object of making compulsion effective. The appointment of vaccination officers was provided for, though not made compulsory. In 1871 the great pandemic of small-pox reached Britain, and in that and the following year it swept the country, causing heavy loss of life. A further Act was passed making the appointment of vaccination officers compulsory.

During the two following decades, 1873-92, a vigorous policy of compulsion was pursued, and with much success so far as the proportion of infants vaccinated was concerned. This period, indeed, marks the high-water mark of compulsory vaccination. For England and Wales the proportion of infants successfully vaccinated averaged 87.3 per cent. of the births. The proportion dying unvaccinated, etc., accounted for 9 per cent., whilst the residue "unaccounted for" was only 3.7 per cent. We are never likely to obtain a larger amount of vaccination than was the case during this period. Indeed, it is fairly certain we could never attain again to anything approaching it. But what was the sequel as regards small-pox? During this period, be it observed, vaccination alone was trusted to and was regarded as our chief line of defence, and those modern methods of controlling small-pox—notification, isolation, surveillance, and vaccination of contacts—which have since proved so effective, were still in their infancy. The Infectious Diseases (Notification) Act, for example, was not passed until 1889, though it is true that many towns had local Acts earlier than this year.

Under these circumstances vaccination proved quite incapable of preventing widespread and fatal epidemics. Let me quote just a few examples.

(1) Sheffield had a serious epidemic in 1887-88. The disease ran riot. There were 4,703 cases, of which 4,151, or 88 per cent., were in vaccinated persons. Dr. Barry, who reported on the outbreak for the Royal Commission, stated that "Sheffield had obeyed the vaccination laws better even than the average of large towns." At this time compulsory notification of disease was not in force in Sheffield.

(2) In 1892-93 Warrington had an epidemic which was officially reported on for the Royal Commission by Dr. Savill. There were 667 cases, of which 62 proved fatal. Now Warrington was such a well vaccinated town that Dr. Savill wrote: "It might perhaps at first sight be a matter of surprise that a comparatively well vaccinated town like Warrington should have been the scene of such a severe epidemic of small-pox. I estimated that nearly 99.2 per cent. of the inhabitants had been vaccinated once in their lives before the outbreak. . . ." It can hardly be contended that neglect of vaccination had anything to do with this outbreak.

(3) In 1897-98 Middlesbrough had a serious epidemic. There were 1,411 cases, and of these no less than 1,213, or 86 per cent., were in vaccinated persons. Moreover, 108 of these vaccinated cases proved fatal.

These examples could be multiplied indefinitely. The total number of deaths from small-pox during the two decades was 3,832. During the second half of the period, as modern measures came more and more into vogue, the disease rapidly receded, most of the deaths occurring during the first half.

In the face of experience such as this it must surely be obvious that vaccination, however efficacious it may be in protecting the individual, is quite unreliable if trusted to as a weapon for protecting the community.

In 1889, in consequence of the strength of the agitation against compulsory vaccination, the Royal Commission was appointed, and they presented their final report in 1896. As the result of their recommendations the Act of 1898 was passed, with its loophole for the "conscientious objector." The loophole was further enlarged by the Act of 1907.

The medical profession were all along opposed to the "conscience clause," believing that it would lead to a decrease in vaccination. The event has proved that they were right. Since the "conscience clause" was passed vast numbers of parents have taken advantage of it, and infant vaccination has steadily fallen till now less than 50 per cent. of infants born are vaccinated. To-day, as we have said, infant vaccination is really compulsory only in name.

But the sequel as regards small-pox has been most unexpected. So far as the old-fashioned fatal small-pox goes—the kind of small-pox that caused the disease to be so much dreaded, the kind of small-pox that the Government of this country had in mind when they first made vaccination compulsory—it has virtually disappeared. Deaths from small-pox have quite ceased to influence our national statistics. In Leicester, the most unvaccinated city in the country, where less than 9 per cent. of all births have been vaccinated during the past forty years, there has not been a single death from small-pox for twenty-one years. Other unvaccinated towns have had a similar experience. Modern methods of fighting the disease, which have taken the place of infant vaccination, have proved so successful that it is no exaggeration to say that in this country severe small-pox is now more amenable to control, and causes a smaller mortality, than any other serious infectious disease.

What sort of a case, then, can we possibly make out to justify a reversion to really compulsory vaccination, a measure which would inevitably arouse great opposition among large sections of the public, and which is also by no means free from objection on medical grounds, for vaccination, after all, constitutes a definite, if temporary, interference with health?

The one and only argument is that an ultra-mild, non-fatal strain of small-pox—so different in its effect upon health from "old-fashioned" small-pox that some have even questioned if it really is small-pox at all—has gained access to this country, and, largely on account of its very mildness, is proving more difficult to control than the "old-fashioned" severe strain. Nevertheless, most districts invaded, where energetic measures have been taken, have successfully stamped it out. A few districts, including the county of Durham, where doubtless there have been special difficulties, have hitherto been less successful.

This failure in the county of Durham was attributed at the conference to the inadequacy of the available hospital accommodation, to the failure of medical practitioners to recognize the nature of the disease, and to neglect and indifference on the part of the public owing to the mild character of the disease. Possibly at the outset there were other causes.

Sir George Newman, in his report for 1925, speaking of small-pox, refers to a certain district in the North of England in which

> "all the ordinary measures necessary to limit the spread of the disease were neglected for a prolonged period, with the result that the infection overflowed and became widespread in surrounding districts. There is reason to believe that spread of the malady took place from that ill-administered district into at least eight other districts in the vicinity, and that the prevalence of small-pox which occurred on Tyneside was in no small measure due to the long-continued neglect in the district in question."

It is quite certain that any attempt to tighten up the Vaccination Acts would meet with strong and bitter opposition from a large section of the community. Incidentally, it will do nothing to increase the popularity of the medical profession. Of much greater importance is increased hostility to vaccination, which will almost inevitably ensue, making it more difficult to secure "emergency" vaccination when we really need it.

In view of the arguments set forth above, I would appeal to medical officers of health and the medical profession in general to consider carefully whether the proposal to press the Government to amend the Vaccination Acts in the direction indicated is really necessary or even desirable.—I am, etc.,

Health Offices, Leicester, Jan. 11th. C. KILLICK MILLARD.

*** A report on the small-pox situation in Sheffield and in the county of Durham will be found at page 147.

SURGERY IN GENERAL PRACTICE.

SIR,—I entirely agree with the remarks of "An Occasional Surgeon" in your issue of January 1st, p. 42. I am on the staff of a small hospital, and have for some years done practically all the surgery in a large general practice.

In reply to the eminent surgeons who criticize the general practitioner, I would make the following points: An eminent surgeon operates on a patient. In many cases he never sees that patient's wound again. The report of a house-surgeon, sister, or nurse, however capable, is a poor substitute for personal observation. When I operate on a patient I visit him several times a day for the first few days, and do all the dressings myself. I should say that I have a very clear conception of my own limitations; there are some operations which I should not attempt.

The following sidelight on the patient's view of the "eminent specialist" may be of interest. A few years ago I operated on a little boy for hernia. The grandparents are very wealthy people to whom expense is of little account. Recently the grandmother got an attack of subacute appendicitis. Thinking that possibly they would prefer someone more important than myself to perform the operation I wired to a London surgeon, warning him that I might want him. When I mentioned this to the patient's husband he was most indignant. He said that I had operated on the little boy with every satisfaction, and that if any operation was to be done I was to do it.

Incidentally I may say that the London surgeon, on receipt of my wire, sent two telephone messages—the first to the effect that his fee for coming would be 100 guineas (the distance is about 130 miles by rail), and the second to make it quite clear that this fee would not include the operation (if any).—I am, etc.,

January 1st. ANOTHER G.P. SURGEON.

THE PUBLIC, THE DOCTOR, AND THE MASSEUSE.

SIR,—Dr. Murray Levick's letter (December 11th, 1926, p. 1142) raises a point of the greatest practical importance. Phototherapy is now being given indiscriminately by a large number of nurses, masseuses, "institutes," and so on, and it is time that the dangers of this practice should be brought before the public and the medical profession by those who are qualified to do so.

It is unfortunate that lecturers and writers of books on actino-therapy lay such stress on its complete safety. Those who have had practical experience of this treatment know that different patients react in different ways and degrees to ultra-violet light, and that, to obtain good results, these differing reactions should be observed after each treatment and the subsequent exposure regulated accordingly. When the treatment is given to a healthy person merely as a "tonic" this exact supervision may not always be necessary, but the case is very different when such conditions as tuberculosis, asthma, and skin diseases are being dealt with.

Dosage cannot always be regulated according to the degree of skin erythema alone, but the constitutional symptoms must also be considered; and in such cases accurate observations and deductions can only be made by those who have been trained in clinical medicine. The choice of lamp, the dosage, the question of combining local with general treatment, and so on, are all matters which should not be left to unqualified persons to decide.

Dr. Kerr Russell, in his letter (December 18th, 1926, p. 1196), has pointed out the rashness of installing lamps in the home, and with this opinion I can only express the most emphatic agreement.—I am, etc.,

London, W.1, Jan. 4th. HUBERT M. ODDY.

MATERNAL MORTALITY.

SIR,—After forty years of general practice and a considerable amount of obstetrics during that time, one must have formed some views on the practice of that art.

I contend that we of the medical fraternity are going through a very unfair interference and criticism as to our work, by those who are riding hard for a whole-time service. We hear the specialist put in the forefront, the

midwife extolled for carrying out the dictums laid down by a certain section, and the medical practitioner is put forward only as a cleaner-up of any mess someone else creates, and takes the blame thereof.

I consider that in midwifery the general practitioner is the specialist, from his constant practice, and that this position should be recognized. We hear the doctrine of masterly inactivity extolled without any reference to the feelings, health, strength, and circumstances of life of the patient; they are only a cipher to be bandied about, for so many hours, in useless and feeble efforts at natural delivery, notwithstanding that with the strenuous lives we are living, and the bad food we have still to eat, and the heavy taxation and small means, the majority of patients are far from normal at the best of times.

The great sin of medical men seems to be the too frequent use of instruments. I would rather say it is the frequent want of a better acquaintance with those instruments, which is the fault of the schools in which they have been taught; properly used they have no danger.

It is the much advocated waiting, causing the foetal parts to lie for hours pressing on maternal parts with no hope of shifting, which causes soddening of the tissues, allowing germs an easy entrance at those points, and thereby causing sepsis. Again, who would dare to perform the simplest operation on a patient prepared as an obstetric case is prepared (in the majority of cases it would be suicidal), and yet the powers that be talk of germs being introduced by making a vaginal examination. There is no risk in examinations if the hands are surgically prepared each time; I strongly object to gloves in obstetrics because of the impossibility of their being sterilized over and over again.

Recent instruction as to reporting cases with a temperature of 100° F. sustained for three days is going to do infinite harm. First, it will alarm the patient; secondly, the many trivial causes for such elevation of temperature, well known to the general practitioner, make it quite unnecessary; and thirdly, it will utterly demoralize the nerve of young practitioners, who very soon would become quite unable to sustain the anxiety of conducting any case.

I have read Dr. J. S. Fairbairn's address (January 8th, p. 47) with great interest, but do not agree with the trend of his argument when he links medical men, midwives, and specialists together with hospitals as the solution. I would suggest: hygiene of the home; beds in the local hospital for special cases, attended by general practitioners, who should be left alone, away from the continual vexatious instructions of those who are working for whole-time service; better teaching in hospital as to the handling of those helps we have for the alleviation of suffering—forceps, turning, and artificial dilatation such as with de Ribes's bag, and judging the proper time to interfere when the natural efforts are from many causes futile.

I consider the Queen Victoria's Jubilee Institute to be one of the best of institutions, and the nurses are excellent; but I also think, with their limited experience, far too much is expected of them, and I certainly condemn the suggestion that drugs should be placed in their hands. We practitioners are put through a very severe test before drugs are placed in our hands; why should nurses with comparatively no training be allowed to use them? Even we are now forced to account for what we use—another vexatious restriction on our position as registered medical men. Also, I think sedatives are only another excuse for delay in obstetrics, because the medical man has not the courage of his opinion against the fads of to-day, which will be pushed on one side for other fads in due course. Of course, there are times in obstetrics when morphine is good, but they are the exception, not the rule.

In conclusion, I would like to suggest that a partial solution would be:

1. A coming down to earth with our ideas—cutting our coat to the amount of cloth we can afford.
2. Hygiene of the home.
3. Surgical preparation on all sides for an operation of much importance.
4. A general idea for all, with freedom of action.
5. A closer study of those helps which we possess by students while they are students.
6. A little less of statistics and more of the practical experience of the forever slighted general practitioner.

Finally, I would suggest that the medical practitioner should be allowed to have a voice in carrying out his practice, without the incessant interference of those who live on statistics, and use them in preference to practical experience. Of course, I am only speaking of practice, not research.—I am, etc.,

Wallington, Surrey, Jan. 13th. A. Z. C. CRESSY.

HEREDITARY MUSIC.

SIR,—In view of your notice of Dr. Louis Vezoux's *L'Hérédité Musicale* (January 8th, p. 70) your readers may be interested in Dr. Mjoen's investigation into the inheritance of musical talent. He examined the 442 children of 114 marriages, classifying musical talent in three grades—superior, musical, and poor.

When both parents were superior 72 per cent. of the children also were, the remaining 28 per cent. being musical; none were poor. When both parents were poor 90 per cent. of the children were also, 10 per cent. were musical, and none were superior. When both were musical 39 per cent. of the children were superior, 49 per cent. musical, and 12 per cent. poor. The marriages of superior with poor yielded 26 per cent. superior, 37 per cent. musical, and 37 per cent. poor.

These results certainly point to musical talent depending on Mendelian factors, though not of the simplest kind, and partially recessive to normal. Dr. Mjoen emphasizes that, whilst the qualities of the parents are usually a good clue to the qualities of the children, they are not infallible. The qualities of the stock, as judged by the collaterals of the parents, determine the abilities of the children. He quotes one particularly interesting case of a concert player, herself the mother by a musical husband of seven highly gifted children. But he was for long puzzled to account for her own talent, since her father, mother, and seven brothers and sisters had no musical gifts, until he found that she was the illegitimate child of a great musician belonging to a family of artists.—I am, etc.,

London, S.W.1, Jan. 11th. ELDON MOORE.

ERYTHROEDEMA AND ACRODYNIA.

SIR,—In the discussion following Sir Humphry Rolleston's presidential address at the Medical Society of London, on "Changes in the clinical aspects of disease" (BRITISH MEDICAL JOURNAL, January 15th, p. 100), the disease *erythroedema*, to which I alluded, has been mistakenly printed *erythroderma*. I may add that the former name, first applied in 1914 to an apparently new disease in children by Dr. H. Swift of Adelaide, in Australia, had the disadvantage of wrongly suggesting that true oedema was one of its obvious symptoms. This is not so, but nevertheless the term is preferable to "acrodynia," the name of an epidemic disease supposed to have attacked about 40,000 persons during 1827-28 at Paris. The two diseases can hardly be the same, and yet the article by Dr. W. Weston on the new disease in Abt's *Pediatrics* (vol. ii, p. 986) has been headed "acrodynia," and cases have recently been exhibited under that heading at the Paris Société de Pédiatrie, and at the Lyon Société Médicale des Hôpitaux and at the London Royal Society of Medicine (Section for the Study of Disease in Children). Cases of erythroedema should not be permitted to masquerade under the term "acrodynia" any more than under "erythromelalgia," though symptomatically the latter term is a good one, signifying the presence of redness and pain in the extremities.—I am, etc.,

London, W.1, Jan. 15th. F. PARKES WEBER.

MIGRAINE AND ACETONURIA.

SIR,—The letters by Dr. Fawkes, "Consulting Surgeon," and Dr. P. J. Cammidge on this subject are most interesting, but to me they contain a contradiction, equally interesting—namely, that sugar deficiency is the cause, and that glucose is the proper treatment of migraine.

I also suffered for years from migraine, characterized by hemicrania (usually over the left eye, and relieved by

pressure upon the eyeball), nausea, and depression, and then vomiting of sour material. After vomiting and sleep the attacks passed away, but recurred about once or twice a week. I lived very plainly and used no alcohol, but I took sugar, treacle, and jams to excess. On stopping these the attacks ceased. I have for long taught that sugar in excess is the cause of "sick headaches," and I think two of my surgical colleagues in Newcastle can testify that cutting out sugar relieved them also of hemicrania.

In the out-patient department of the Royal Victoria Infirmary I have often seen middle-aged women complaining of "bilious attacks." When I asked one of these patients how much tea she drank, she would admit two cups for breakfast, one in the morning, one after the mid-day meal, two in the afternoon, and two for supper—that is, eight cups of tea daily. I then asked how much sugar she took in her tea, and the answer usually was two or three teaspoonfuls, with sweetened condensed milk in addition, say, thirty teaspoonfuls of glucose daily.

Now the sugar standard of Nature is the sweetness of milk, and a baby or young animal can grow and thrive on the proportion provided therein. And, rightly or wrongly, I consider most cases of migraine are due to sugar excess in adults, and particularly in thin persons, who are unable to convert sugar into fat, and who possibly produce lactic acid, which, irritating the nerve endings in the stomach, produce the reflex which we name migraine.

The reflex may, of course, come from quite different irritants, such as the fats, coffee, and whisky of "Consulting Surgeon," just as the nasal reflex of asthma may come from different irritants, and just as the reflex of epilepsy may come from gastric irritation, from a tight prepuce, an undescended testicle, or from the onset of puberty in girls. But among the irritants setting up migraine, I venture to think that sugar in excess is one, and commoner than is perhaps generally thought.

This seems contradicted by Dr. P. J. Cammidge's experience; he states: "If the blood is also examined an abnormally low sugar content is generally found, thus accounting for the beneficial effect of glucose to which Dr. Fawkes refers." I wonder what the explanation really is? Does a large intake of sugar mean improper assimilation, with the formation of acetone, lactic acid, or other irritant?—I am, etc.,

Newcastle-on-Tyne, Jan. 1st. T. M. ALLISON.

CHOLECYSTOGRAPHY.

SIR,—With reference to Professor Evarts Graham's letter (January 1st, p. 41), as I have been associated with Mr. Huddy in this work, I beg leave to point out that his reason for publishing this case was, not to criticize the methods of Professor Graham, but further to bring out the advisability of the drug being given in small doses and in two portions in preference to a single dose. Although as large doses have been given by other observers without fatality, they cannot, in view of this case, be considered without danger. The patient was particularly big and heavy, and as such might have been considered safe.—I am, etc.,

Birmingham, Jan. 11th. A. RUSSELL GREEN.

MEDICAL POSTS IN INDIA.

SIR,—Under the heading "Medical posts in India" in the JOURNAL of January 15th (p. 120) "Observer" wisely advises intending applicants to consider carefully the terms offered; and not so wisely proceeds to criticize unfavourably the terms offered (JOURNAL, November 27th, 1926) by Lucknow University for the post of professor of anatomy. "Observer's" letter appears to me full of inaccuracies with regard to expenditure, and conditions of living in India generally; and on referring to the advertisement in the issue of November 27th I find that his statement regarding the terms offered is also inaccurate and misleading. He fails to state that the appointment would be temporary—about eighteen months—and that the salary for a permanent incumbent would be Rs.1,450-50-1,650; also that the deduction of 8 per cent. salary for the University Provident Fund—a wise form of insurance in India—would take effect only if the applicant were permanently appointed. With regard to the other two deductions mentioned:

(1) Income tax.—9 pies per rupee compares very favourably with 4 shillings in the pound sterling at home.

(2) Profession tax.—I am not familiar with this tax, which is stated to be not less than Rs.10 monthly.

With regard to cost of living, "Observer" (assuming the applicant to be a bachelor) states that "after exercising great and uncomfortable economy" the unfortunate professor might have a credit balance of Rs.300 a month; but that with a wife and family, involving a move to the hills during the hot weather, it would be impossible to live on the pay offered. The best answer to this is that scores of military officers and other Europeans in India manage to do it on a much lower salary. A bachelor living in the club, or in a "chummery," at such a place as Lucknow should be able to keep a motor bicycle or small car, play cricket, golf, tennis, and almost any game, except polo, and do himself reasonably well on Rs.600-800 a month. A great deal would, of course, depend on the size of his wine bill at the club.

I express no opinion as to whether or not a commencing salary of Rs.1,450 monthly (about £1,300 a year at present) is reasonable and adequate remuneration for a professor of anatomy in a provincial university in India, but at any rate it is a living wage. Finally, "Observer's" statement that living expenses in Calcutta are at least three times as much as in Lucknow is simply ridiculous.

I am aware that the cost of living in India, as everywhere else, has gone up tremendously, but "Observer" appears to take a much too gloomy view of the matter.—I am, etc.,

January 15th. LIEUTENANT-COLONEL (Ret.).

HISTORY OF DIPHTHERIA.

SIR,—A mere fleet surgeon should be in agreement with a surgeon-general, but when Sir Humphry Rolleston ascribes the discovery of diphtheria to Bretonneau in 1821 (JOURNAL of January 15th, p. 90) he traverses one of the traditions of my family, which holds, as have some other people, that diphtheria was first separately described, in 1765, by my great-grandfather, Francis Home, President of the Royal College of Physicians of Edinburgh, 1775-77; and professor of materia medica in the University, 1768-98. In his essay on croup (1765) he mentions a false membrane in the larynx, and in his *Principia Medicinae* (third edition, 1770) speaks of the return of fluids through the nose in deglutition and the raw bleeding surface left if the membrane is pulled off, further recommending "bronchotomy" to prevent suffocation. His portrait is to be shown to the Epidemiological Section of the Royal Society of Medicine on January 28th.—I am, etc.,

W. E. HOME,
London, W., Jan. 15th. Fleet Surgeon.

ESSENTIAL OIL TREATMENT OF CHOLERA.

SIR,—I was much interested in Dr. Cannon's article on "The essential oil treatment of cholera" in your issue of January 15th (p. 98). Before I went to India in 1890 someone with experience of tropical disease advised me to use oil of cajeput in cholera. I was able to put this in practice during an epidemic of cholera among the European troops at Quetta, in the early nineties, with such good results that I determined to use cajeput again in any future cases I might have, but I did not again come in contact with cholera. Lapse of years must be my excuse for the lack of scientific detail in this very bald statement, but it is quite accurate as far as it goes.—I am, etc.,

E. C. FREEMAN, M.D.,
Bury St. Edmunds, Jan. 17th. Colonel, late R.A.M.C.

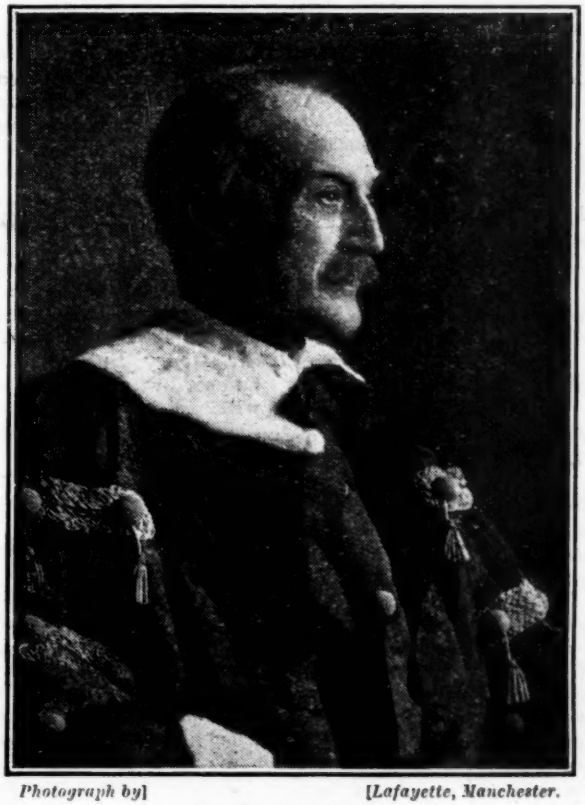
Obituary.

SIR ISAMBARD OWEN, M.D., F.R.C.P.,

Lately Vice-Chancellor of the University of Bristol.

WE regret to have to record the sudden death, in Paris on January 14th, of Sir Isambard Owen, who, during his residence in London, was an earnest worker for the British Medical Association.

Isambard Owen was the son of Mr. William George Owen, who became chief engineer of the Great Western Railway. He had been associated with Mr. Isambard Brunel in the construction of that railway, and when in 1850 his son was born was residing at Chepstow. His father afterwards removed to Gloucester, and Isambard Owen was sent to the King's School there and later to Rossall. He went up to Cambridge (Downing College) at the age of 18. Later on his old College made him an Honorary Fellow. Having resolved to take to medicine he entered the Medical School of St. George's Hospital, with which he remained connected until he left London. He was elected assistant physician and afterwards physician. He was dean for five years, and from 1899 lecturer on medicine until his appointment to be Principal of Armstrong College, Newcastle-on-Tyne, in 1904. He had graduated M.B.Camb. in 1876 and proceeded M.D. in 1882; in 1885 he was elected Fellow of the Royal College of Physicians of London.



Photograph by [*Lafayette, Manchester.*

SIR ISAMBARD OWEN.

Prior to his appointment at Newcastle Owen had shown a lively interest in higher education and had taken an active share in the discussions for the reconstitution of the University of London. Earlier than this he had been largely instrumental in the establishment of the University of Wales. While still a young man he had become a member of the great London Welsh Society of Cymmrodorion, and in 1879 became a member of its council; there then existed University Colleges at Aberystwyth, Bangor, and Cardiff, all in receipt of Government grants. Attention was first directed to intermediate education, and the Welsh Intermediate Education Act was passed in 1889. In 1887 Owen organized a public conference which passed resolutions disclosing a strong feeling in favour of the establishment of a national Welsh University, and it was at that early date recognized that women should be afforded the same facilities as men. In March, 1888, after a further conference of an academic character, held at Shrewsbury in January, a series of resolutions were laid before a meeting of Welsh peers and members of Parliament. In 1891 Isambard Owen was one of the representatives of Cardiff at a University Conference appointed by the University Colleges of Aberystwyth, Bangor, and Cardiff, and the Conference of Joint Education Committees. The difficult task of this conference was to frame a scheme which would commend itself to all these colleges, lay and academic elements alike, and to the rising intermediate education authorities, as well as to the religious bodies, the local authorities, and the general public of Wales. Something approaching unanimity was required to give any hope of success in getting a scheme passed into law. A draft scheme prepared by Isambard Owen and Principal Viriamu Jones was submitted to the conference, which laid down certain broad principles and provided for the appointment of a draft charter committee to prepare a scheme in detail. Of this committee, which began its meetings in April, 1892, Isambard Owen was an active member, and to him was entrusted the delicate and arduous duty of drafting a definite scheme. The University conference reassembled in January, 1893, adopted the scheme, remitted it to the county councils, the colleges, and the Intermediate Education Conference, and commended it to the public. For six months it was actively debated, but ultimately was found to have gained general assent. Both during and after this time an immense amount of work had to be done in defending the scheme and converting it into charter form; but Isambard Owen proved equal to all calls upon his time and energies, and the charter was approved by Parliament and passed under the Great Seal. Isambard Owen was appointed one of the Crown Members of the University Court, and when it met in April, 1894, he consented to act as honorory secretary till the statutes were completed and a registrar could be appointed. In January, 1895, Lord Aberdare was elected Chancellor, Principal Viriamu Jones entered office as first Vice-Chancellor, and Isambard Owen was elected Senior Deputy Chancellor. The Chancellor's place, when absent, is, in the University of Wales, taken by one of two deputy chancellors. The Vice-Chancellor is the academic head of the University, but not the chancellor's deputy unless specially elected as such. The vice-chancellorship can only be filled by the principal of a college. As originally contemplated, the duties of a deputy chancellor would have been limited to occasional presidency of the University Court or its committees, or of a congregation of the University, in the absence of a resident chancellor. The death of Lord Aberdare a few weeks later and the subsequent election of the then Prince of Wales (afterwards King Edward VII) to the chancellorship made the senior deputy virtually the acting head of the University in all but purely academic matters, and his office became an arduous and responsible one. He discharged all its duties with his accustomed grace and assiduity, and when he became officially connected with other universities he retained his connexion with Wales as a member of the council of University College, Cardiff, and a governor of University College, Aberystwyth. The honour of knighthood which he received in 1902 was a recognition of the work he had done for Wales in promoting the establishment of the national University.

Isambard Owen's chief contribution to the long-drawn-out discussions on the reconstitution of the University of London was a scheme for a University of Westminster, drafted in consultation with Sir James Fowler in 1897. It proposed to leave the existing University of London alone, and would have given to the medical schools all that they had asked for, and especially the possibility of their students obtaining a degree in medicine or surgery on terms of equality with students of other universities. It was, we are told, the twenty-first scheme which had been put forward. It differed from its predecessors by placing the chief power in the hands of a council of the faculty, the institutions represented therein being left to organize themselves, instead of entrusting this duty to a commission in the composition of which they had had no voice. A general committee was formed, containing 140 persons attached to one or other of the London medical schools,

and for a time the prospect of the scheme seemed good, but the London University Commission Bill was passed soon after the Westminster scheme was published in the BRITISH MEDICAL JOURNAL of December 25th, 1897 (pp. 1869-71), and it consequently went into abeyance and was never, so far as we are aware, revived. Owen loyally accepted the recommendations of the Royal Commission, and was vice-dean from 1901 to 1904 during Sir James Fowler's tenure of office as dean of the Faculty of Medicine of the University of London.

In 1904 he gave up his work in London to become Principal of the Armstrong College at Newcastle-on-Tyne.

Sir ROBERT BOLAM has been good enough to send us the following note:

Sir Isambard Owen's work in Newcastle-on-Tyne covered a brief period of five years. He followed Principal Gurney, and saw the finish of the construction and the official opening of the fine west front of Armstrong College. Probably through his personal influence King Edward and Queen Alexandra combined this function at the college with the opening of the New Royal Victoria Infirmary. Owen's great achievement in the Northern University, however, was undoubtedly the passing of the University of Durham Act in 1908. Before the successful issue of his diplomatic effort the place of Armstrong College in the University scheme was relatively subordinate. By the new Act Newcastle, with its College of Medicine and Armstrong College, became equally with the colleges at Durham represented in the administrative mechanism of the University. The course of the negotiations themselves and the final achievement were remarkable tributes to Owen's genius for organization.

In 1909 he was appointed Vice-Chancellor of the newly constituted University of Bristol. The University had been formed by the combination of three institutions—a university college, a technical college, and the old-established medical school. Of the value of his work for the University Professor J. A. NIXON of Bristol has been good enough to send the following estimate:

Sir Isambard Owen came to Bristol as Vice-Chancellor of the University in its opening years. His mark had already been made in the academic field by his administration of the Armstrong College in Newcastle-on-Tyne and his strong hand in the University of Wales. He found several difficult situations to negotiate in those early years. They were not of his making, and he faced them with a striking detachment, which proved of the utmost value when the troubles had been overcome. It was a great factor in producing an atmosphere of concord that the Vice-Chancellor, the principal officer of the University, had played no part in the transactions which led for a time to serious discord. His neutrality and impartiality strengthened his position for the future.

The young University owed a great deal to his knowledge of university affairs. He was in touch with the other universities of the kingdom, and in conference and congress it was no small asset that the spokesman for the newest university should be already known and capable of commanding attention. In his handling of Government departments there was something of a "wizardry" that may have been, like that of a recent Premier, his birthright—for Sir Isambard Owen was in some of his gifts unmistakably Welsh. It showed in his deep, melodious voice, in his power of oratory, which, though restrained, could alternate quickly between deep emotion and light humour. His education at Cambridge, and his professional life in London as a physician at St. George's, had bred in him a wide sympathy with the humanities as the basis of university education. Thus, in spite of the overpowering attractions of science to the undergraduate of a modern university, Owen strove vigorously and successfully for a place in the sun for the Faculty of Arts and polite learning in general. There was a good deal of the artist in him; pictures and music appealed warmly to him. With medical affairs he concerned himself scarcely at all. It seemed as though he felt that his retirement from the practice of medicine had deprived him of all claim to advise on matters medical in his own university, though he sat on the General Medical Council as its representative from 1910 until 1925. Many of his colleagues knew him as Worshipful Master of the St. Vincent Lodge of Freemasons in the Province of Bristol. He was an ardent Freemason, and in the chair of his Lodge he won lasting affection and widespread admiration; he attained to high honours in the Province in recognition of his labours and his talents. Although at times in his later years he seemed frail and weary, and even ill, he never appeared old. He had a very young heart in him, so that when news came that he had died suddenly in Paris, at the age of 76, the realization of the full tale of his years could scarcely overcome the feeling that the end had come unexpectedly young.

The British Medical Association had from its first institution desired to contribute to the advancement of medicine, especially on its clinical side, and suggestions had been made from time to time that it should enlist the interests of its many members in the collection of clinical and epidemiological information. When, therefore, in his address as President of the Annual Meeting at Cambridge in 1880, Professor (afterwards Sir) George Murray Humphry dwelt on the undeveloped capacities for good collective work which the Association possessed, described the advantages which might be expected to accrue from the successful utilization of those capacities, and made a definite suggestion, it was at once accepted, and on the motion of the then Chairman of the Committee of Council, seconded by Mr. (afterwards Lord) Lister, a committee was appointed to consider how it might best be carried into effect; on its recommendation a Collective Investigation Committee was appointed at the next Annual Meeting (Ryde, 1881). The plan had a very good send off, for it was warmly supported at a meeting of the Metropolitan Counties Branch in the autumn of 1880 by Sir William Gull and Sir James Paget. Its first secretary was Dr. Mahomed of Guy's Hospital; after a couple of years he was succeeded by Dr. (now Sir) Wilmot Herringham, and he by Sir Isambard Owen. The committee worked very energetically and issued a large number of inquiry forms. Reports founded on these returns were prepared, one by Sir George Humphry on centenarians, another on chorea by Sir Stephen Mackenzie, and yet another by Sir Henry Butlin on cancer of the breast. Isambard Owen's own contribution was on the connexion of disease with habits of intemperance; it was published in this JOURNAL in June, 1888, and reprinted in the *Collective Investigation Record* which the committee had instituted. His conclusions were that habitual indulgence in alcoholic liquors beyond the most moderate amount had a distinct tendency to shorten life, and that of men who had passed the age of 25 the strictly temperate, on the average, lived at least ten years longer than those who become decidedly intemperate. Another conclusion was that alcoholic excess or the gout which it induced probably plays a special part in the etiology of chronic renal disease. The report expressed regret that the returns to the inquiry were not far more numerous than they actually were, and it has to be confessed that the scheme generally did not fulfil the high hopes which had attended its birth.

Isambard Owen was an active member of the Association while he continued to reside in London. He was one of the honorary secretaries of the Metropolitan Counties Branch from 1892 to 1897, and its representative on the Central Council from 1896 to 1899. He was one of the honorary local secretaries of the London meeting in 1895. He was a member of the Parliamentary Bills Committee from 1894 to 1897, and of the Medical Charities Committee from 1899 to 1902. He had been secretary of the Section of Medicine at the Annual Meeting in Birmingham in 1890, was vice-president of that Section at the Annual Meeting at Nottingham in 1892, and its president at the Annual Meeting at Swansea in 1903.

Isambard Owen was a good friend and a charming companion. Slim and rather frail in appearance, he was capable of withstanding fatigue, whether physical, in his favourite pastime of cycling, or mental, when completing under pressure some of the laborious inquiries he undertook. He formed opinions only after full examination, but then held them tenaciously. His manner was always conciliatory, but opponents of a different temperament were often surprised how trenchant could be his criticisms, uttered in a quiet tone and often illuminated by a flash of humour.

Sir Isambard Owen married in 1905, and is survived by Lady Owen and two daughters, to whom, on behalf of the Association and the profession at large, we desire to offer our sympathy.

THOMAS CLAYE SHAW, B.A., M.D.LOND., F.R.C.P.,

Emeritus Lecturer on Psychological Medicine, St. Bartholomew's Hospital.

THE death of Dr. Thomas Claye Shaw, in his eighty-sixth year, removes from the medical profession a remarkable personality. Dr. Claye Shaw was educated at King's College, London, where he was Senior Warneford Scholar. He became B.A. of the London University in 1860, M.R.C.S. and L.S.A. in 1864, and M.B. in 1866. He took the degree of M.D. in 1867, qualifying for the gold medal, and in 1880 was elected a Fellow of the Royal College of Physicians. Turning his attention to mental disease, he became medical superintendent of the London County Asylum at Banstead, in Surrey. Subsequently he was appointed lecturer on psychological medicine at St. Bartholomew's Hospital, and lecturer on clinical insanity at St. Luke's Hospital in the City. At one time he was examiner in mental physiology and psychological medicine at the University of London, and to the Board of Studies of the Army Medical Service. With the Rev. H. Hawkins he took an active and early part in the foundation of the After-Care Association. Dr. Claye Shaw was an ex-president of the Society for the Study of Inebriety, and a member of the Medico-Legal and the Harveian Societies. He was associated with the Psychological Section of the British Medical Association as honorary secretary at Manchester in 1877, as vice-president in London in 1895, and as president at Exeter in 1907.

Dr. Claye Shaw was rugged in appearance, and rugged also, though kindly, in manner. He was, perhaps, one of those who want knowing; but to those who knew him he was kindness itself, helpful in an emergency, and of sound judgement on all occasions. As a lecturer he was very attractive, and his classes at St. Bartholomew's Hospital were always well attended. He was outspoken, and dogmatic as far as his subject would allow. Those who were at the hospital in the nineties will remember an occasion on which he gave the opening address at the Abernethian Society. He came prepared with an address "for men only." He was startled, but unabashed, at finding a mixed audience of students and nurses.

Most of Dr. Claye Shaw's writings were articles in journals, hospital reports, and medical dictionaries. But he wrote one book, *Ex Cathedrâ Essays on Insanity*, which we reviewed in December, 1904. In that review attention was called to Dr. Claye Shaw's breadth of view and originality, to the illuminating character of this book as a psychological study of insanity, and to the useful provocativeness of theories wherein he was at variance with other authorities. In 1913 Dr. Claye Shaw aroused much discussion by an address to a medical audience. He warned the modern woman that her new activities in sport and independence in life would mar the beauty of her face, change her nature, and alienate male sympathy. At the beginning of the war he made a scathing attack on the mentality of the German in general and the Kaiser in particular. In an article on the psychology of sport he displayed his keenness for this form of mental relaxation by advocating the setting up of public memorials to all outstanding figures in the world of sport.

Dr. Claye Shaw was virile and robust in mind and body, with, perchance, a tinge of genial eccentricity acquired from long contact with the insane. Latterly, those who knew him well, and admired his great qualities, had seen little of him. He lived in retirement at Cheltenham with his wife, who predeceased him by less than two years. He had two daughters.

We regret to announce the death of Mr. FREDERICK GEORGE LARKIN of Grove Park, Kent, in his 80th year, on January 13th. Mr. Larkin received his medical education at Guy's Hospital and obtained the diplomas M.R.C.S.Eng. in 1870 and the L.R.C.P.Edin. and L.M. in 1882. He early attracted notice as a pioneer in surgery, for in 1869 he read a paper before the Guy's Hospital Physical Society, in which he suggested excision of the kidney as the result of some careful practical research he had already accomplished. This paper aroused considerable interest and paved the way for the first operative measures at Guy's Hospital and elsewhere for the treatment of stone in the kidney and other renal diseases. In 1915 he was elected to the Fellowship of the Royal College of Surgeons of England as a member of twenty years' standing. Mr. Larkin became known also in medico-legal circles in consequence of his connexion with the Whitechapel tragedy, and published the report of the *post-mortem* examination on Harriet Lane (JOURNAL, vol. ii, 1875, p. 730). In the next year he gave evidence as principal witness for the Crown in the celebrated Wainwright case, and was congratulated on his careful examination and lucid account. He won widespread popularity as a general practitioner, taking a special interest in renal and general surgery and the treatment of fractures. Apart from his surgical work, his chief recreation was music, and particularly Church music. He served as choirmaster in two churches successively, and for many years was closely associated with the Westminster Abbey choir, in which he sang at the jubilee celebrations of Queen Victoria and the coronation services of King Edward VII and the present King. His musical compositions include a dramatic song "The Shipwreck" and various pieces of Church music. He was buried at Heath near Canterbury, where he was born.

Dr. HENRY BERTRAM DISMORR, who died at Hallidays, Purton, on January 4th, was a son of Dr. Henry Dismorr, formerly of Lewisham. He was educated at Clifton and Guy's Hospital, obtained the diplomas M.R.C.S., L.R.C.P. in 1900, and after a two years' appointment as assistant medical superintendent at Lewisham Infirmary and medical officer of Lewisham Workhouse, commenced practice at Wroughton, Swindon, where he was much respected by his colleagues. For upwards of twenty years he struggled, with occasional breakdowns, against the pulmonary disease which led to his retirement in 1922, at the age of 45. Dr. Dismorr took a keen interest in all sports, and was a prominent Freemason. He was honorary secretary of the Swindon Division of the British Medical Association from 1914 to 1923, and member of the executive committee from 1915 to 1923. He was also a member of the Wiltshire Branch Council from 1915 to 1923. He leaves a widow and one daughter.

Dr. WILLIAM POWER EVERARD, who died on January 2nd, at his residence in Athlone, obtained the diplomas L.R.C.P., L.R.C.S.Edin., and L.R.F.P.S.Glasg. in 1889. He was first appointed medical officer of the Brideswell dispensary district, and was subsequently transferred to Glasson. For the last eighteen years he had been in charge of a dispensary district in Athlone, where his unfailing kindness won him numerous friends. He was on the staff of the St. Vincent Hospital, Athlone.

The Services.

NAVAL MEDICAL COMPASSIONATE FUND.

AT the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on January 18th, when Surgeon Vice-Admiral Sir Joseph Chambers, K.C.B., C.M.G., Medical Director-General of the Navy, was in the chair, the sum of £135 was distributed among the several applicants.

R.N.D.S.

AT the recent competitive examination of candidates for entry into the Royal Naval Dental Service, the undermentioned were successful: W. E. L. Brigham, L.D.S., L. F. Fairey, L.D.S., S. Mawer, L.D.S., F. D. Manners, L.D.S., L. A. Moules, L.D.S., G. Baker, L.D.S., W. C. G. Ford, L.D.S., L. R. Armstrong, L.D.S., H. M. Hill, L.D.S. The names are given in the order of merit shown at the examination.

AMALGAMATION OF NURSING SERVICES.

THE Queen Alexandra's Imperial Nursing Service and the Queen Alexandra's Military Families' Nursing Service have been amalgamated by a Royal Warrant. The combined nursing service will be named "Queen Alexandra's Imperial Military Nursing Service," and its members will wear the same uniform and badge as at present exist for the Q.A.I.M.N.S.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council meeting was held on January 13th, when the President, Sir Berkeley Moynihan, Bt., was in the chair.

Honorary Fellowship.

The President reported that H.R.H. Princess Mary, Viscountess Lascelles, had consented to become an honorary Fellow of the College. The President also stated that Princess Mary hoped to attend at the College on Monday, February 14th, to hear the Hunterian Oration, and that there would then be a suitable opportunity for presenting the diploma to Her Royal Highness.

Lister Centenary Celebrations.

Sir Berkeley Moynihan was nominated to represent the Royal College of Surgeons of England at the celebration in London of the centenary of the birth of Lord Lister, which falls on April 5th, 1927.

Appointments.

Mr. Thelwall Thomas was re-elected to represent the College on the Court of Liverpool University.

Mr. E. Rock Carling, Mr. A. E. Webb-Johnson, and Mr. Claude Frankau were introduced and admitted members of the Court of Examiners.

Diplomas.

Diplomas were granted jointly with the Royal College of Physicians: In Public Health, to twenty-six candidates; in Psychological Medicine, to ten candidates; in Laryngology and Otology, to seven candidates.

The diploma of Fellowship was granted to one candidate, the diploma of Membership was granted to three candidates, and the Licence in Dental Surgery was granted to one candidate, these having now complied with the regulations.

Medico-Legal.

A DUBLIN SURGEON'S FEES.

AN action was heard recently in the High Court in Dublin by Mr. Justice Hanna in which Mr. Denis Kennedy, F.R.C.S.I., a well known Dublin surgeon, claimed £1,468 from the executors of the will of Susan Fay, for work done and services rendered by the plaintiff as a medical practitioner for the deceased, a widow, who had resided at Sandymount, Dublin. The defendants pleaded that the plaintiff did not render the services alleged, and said that the fees charged were not agreed fees, and they were exorbitant and unfair. While denying any liability, the defendants brought into court the sum of £526, which they said was sufficient to satisfy plaintiff's claim. The deceased, it appeared, was operated upon several times by the plaintiff, and otherwise attended at a private hospital and at her own residence before her death.

The plaintiff gave evidence, and outlined the nature of the operations and his subsequent work for the deceased in hospital and at her home. He said that his charges were reasonable. If she had been a very wealthy woman he might have charged more. In cross-examination, the witness said that he never brought a patient into court. Asked what was the highest fee that he had ever received for an abdominal operation, he replied that he once received 400 guineas for an operation and attendance in hospital afterwards. A hundred guineas was not an exorbitant fee for an abdominal operation if the patient was fairly well off. He was in attendance on this lady for nearly two years. He never sent his account to the deceased, as she never asked for it, but she said his fees would be all right. Mr. J. S. McArdle, F.R.C.S.I., gave evidence; he said that the usual fee for operations of this kind was 100 guineas, but it was not the maximum fee. He would not like to take it at anything less than Mr. Kennedy took. The witness said that he had performed 2,000 operations similar to this one. He had received payment for about 25 per cent. of them. His minimum fee for such an operation was 50 guineas. Mr. R. C. B. Maunsell, F.R.C.S.I., said that these were full fees, but certainly not excessive. Asked if it was not usual to send a bill before the patient died, witness said that in some cases it was kind not to do so.

Mr. Fitzgerald, K.C. for the executors, said that they had found it impossible to give the court the expert evidence that was expected. Notwithstanding every effort made by the executors and their solicitors to procure the attendance of a surgeon in Dublin or Belfast, not one of them could be got who would go into the box and tell the court what, in their opinion, was the value of plaintiff's services. The plaintiff's income in fees from this patient worked out at practically £1,000 a year. The executors had met the demand by bringing into court a substantial sum, beyond which they did not think they should be asked to pay. A good deal had been made of what was called the standard fee of a surgeon, but counsel would define it as being what the hope of life would wring from a patient.

In giving judgement for plaintiff for the sum of £680 and costs, Mr. Justice Hanna said that he was bound to take into consideration that the plaintiff was in the first rank, and exercised the very highest degree of surgical skill. He was also bound to consider the position in which Mrs. Fay was. She was a lady who had come into the bulk of her estate through a second marriage, and lived in moderate circumstances in Sandymount. He had nothing but commendation for the executors, who, when faced with a claim which they thought exaggerated, submitted to the court. That was the best way for executors to protect themselves from criticism, and equally Mr. Kennedy had no alternative but to come into court. The amount might have been left to some eminent surgeon to decide, but it was equally possible that it would be difficult to get a medical man to decide as between a colleague and an outsider. He was not inclined to cheesepare with Mr. Kennedy, and, accordingly, in respect to the first three operations, he awarded the fees of £100 for the first operation, £75 for the second, and £50 for the third. It had been argued that the attendance after operations should be complimentary, but, having regard to the evidence, his lordship thought that there was a good deal more to be done than mere normal attendance and examination. Attendance would be covered by £75 in respect of the first three operations. There were six minor operations, for which he awarded £15 each; for attendance during four months, £40; attendance at the deceased woman's residence at Sandymount during seven months, £100; for the Leeson Street Home operation, £75, and treatment and attendance, £50, and to cover general attendance, £25.

Medical News.

THE Hunterian Oration before the Royal College of Surgeons of England will be delivered at the College by Sir Berkeley Moynihan, Bt. (President), on Monday, February 14th, at 4 p.m.

A DISCUSSION on the treatment of cleft palate will be held at the Section of Surgery of the Royal Society of Medicine on Wednesday, June 1st, at 5 p.m. Sir James Berry will open the discussion and will be followed by Mr. Grey Turner and a large number of other surgeons. All speakers are invited to present statistics and show cases to demonstrate the result as to speech.

THE following promotion and appointments to the Order of the Hospital of St. John of Jerusalem are announced. *As Knight of Justice (from Knight of Grace):* Major Sir John Lumsden, K.B.E., M.D. *As Knight of Grace:* Lieut.-Colonel E. J. T. Cory, O.B.E., T.D., M.D. *As Officers (Brothers):* Dr. Marcus A. J. de Lavis-Trafford, O.B.E., Dr. A. R. McLeod, Colonel R. A. Needham, C.I.E., D.S.O., I.M.S., Dr. Louis Patrick Stokes, Major Hugh T. Galbraith, Dr. Robert D. A. Douglas, M.B.E.

TWO sets of post-graduate courses have been arranged at the Royal Northern Hospital for the current year. Course I is open to all practitioners free of charge. It consists of weekly lectures or demonstrations on Tuesdays at 3.15 (the next being on January 25th by Dr. Malcolm Donaldson on salpingitis); and of intensive courses, each lasting a week, to be held in February, May, and October. Tea is provided on each occasion. Course II, on recent advances in medicine, and suitable for the M.R.C.P. and other higher examinations, is held thrice yearly at a charge of five guineas; the next will be during the first fortnight in March. Further particulars may be obtained from the Dean, Dr. E. G. Calvert, Royal Northern Hospital, Holloway Road, N.7.

A NEW series of post-graduate clinics arranged by the University of Sheffield commenced on January 14th, when Dr. Wilkinson discussed cerebral complications of middle ear suppuration. The meetings are held at the Royal Hospital, Sheffield, and are open to all qualified medical practitioners without fee; they will be continued on Fridays, at 3.30 p.m., until March 25th.

A POST-GRADUATE course on diseases of the nervous system will be held at the National Hospital, Queen Square, from January 31st to March 25th. It will include clinical lectures, out-patient work, and demonstrations, and the fee will be five guineas. A course of lectures on the anatomy and physiology of the nervous system will be arranged if there are sufficient applicants. A special course of clinical demonstrations on methods of examination of the nervous system will also be given. Further information may be obtained from the Secretary of the Medical School, National Hospital, Queen Square, W.C.1.

FOUR lectures on a survey of the public health, based on the report for 1925 of the Chief Medical Officer of the Ministry of Health, will be delivered by Sir Robert Armstrong-Jones at Gresham College, Basinghall Street, E.C.2, on January 25th, 26th, 27th, and 28th, at 5 p.m. Admission to the lectures is free to men and women.

THE lecture to the congress of the Royal Sanitary Institute, to be held at Hastings next July, will be given by Sir W. H. Willcox, K.C.I.E., M.D., on chronic rheumatism in its relation to industry. The congress will have six sections, and there will also be seven conferences.

THE third annual Sims Woodhead Memorial Lecture will be delivered in the Arts School, Benet Street, Cambridge, on Thursday, January 27th, at 5.15 p.m., by Mr. W. McAdam Eccles, M.S., F.R.C.S. His subject is "Alcohol in the light of modern research: points accepted and disputed." The Vice-Chancellor of the University will preside. Seats will be reserved on the 3 p.m. train from King's Cross.

THE Fellowship of Medicine announces that on January 27th the opening lecture of the new series on emergencies in medicine and surgery will be delivered by Dr. Burrell on haemoptysis, at 5 p.m., at 11, Chandos Street, Cavendish Square. On January 25th Mr. Victor Bonney will give a demonstration at the Chelsea Hospital for Women, at 2 p.m. From January 31st for four weeks the London School of Dermatology (St. John's Hospital) will hold a clinical course in dermatology; classes in pathology can be arranged. From February 7th the London Lock Hospital will give a four weeks' clinical course in venereal diseases and a series of lectures. Also starting on this date there will be a combined two weeks' course in diseases of children in which the Paddington Green and Victoria Hospitals are participating. The Fellowship also organizes courses in obstetrics and anaesthetics, and can arrange appointments as clinical assistants at the Samaritan Hospital. Copies of all syllabuses, the *Post-Graduate Medical Journal*, and the programme of the general course can be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE programme of the Post-Graduate Hostel, Imperial Hotel, Russell Square, W.C.1, for next week includes an address, on Tuesday, by Professor C. C. Choyce, on pre-Listerian surgery, and a discussion, on Thursday, on the thyroglossal tract. Dinner (5s.) will be served each day at 8 p.m., and the meetings begin at 9 o'clock. All medical practitioners are welcome.

THE Child Study Society, London, has issued its syllabus of lectures and discussions for 1927. At the meeting on March 17th a paper on "Completion of the education of the parent" will be communicated by Dr. J. R. Rees, with the president of the society (the Hon. Sir John A. Cockburn, K.C.M.G., M.D.) in the chair. At the annual meeting on April 28th a discussion on problems in the upbringing of children will be opened by Dr. J. Norman Glaister. Both meetings will be held at 6 p.m., at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., at which address full particulars of the society can be obtained on writing to its secretary, Miss H. M. Richards.

A MEETING of pathologists attached to various London and provincial hospitals was held at the London School of Medicine for Women on January 7th, when it was decided to form a society entitled the British Pathologists Association, to develop the application of pathology in relation to medicine, and to protect all those engaged in its study and practice. It was agreed that membership should be open to all registered medical practitioners engaged in pathological work; the annual membership fee was fixed at one guinea, no entrance fee being required. Dr. C. Powell White of Manchester was appointed president of the new association, and Dr. S. C. Dyke of Wolverhampton, secretary.

ON his retirement Dr. John R. Staddon, after forty years' service as medical officer to the Ipswich Board of Guardians, was entertained by the past and present staff at Heathfields at a farewell supper, and presented with a Sheraton dining table and an illuminated address, together with a cut-glass cigarette bowl from the patients in the infirmary.

DR. AND MRS. D. J. THOMAS of Porthcawl have been presented by the inhabitants of Nantymoel with a silver tray and entrée dishes and a wallet of notes as a mark of esteem for the services rendered by them during the past forty years.

DR. CHARLES SINGER'S second lecture on the "History of medicine" will be given at the College of Medicine, Newcastle-upon-Tyne, on Friday, February 11th, at 4.45 p.m. All medical practitioners in the neighbourhood are invited to attend.

SIR JOHN HERBERT PARSONS has written *An Introduction to the Theory of Perception*, which will be published by the Cambridge University Press next month in the Cambridge Psychological Library, the series in which his earlier work on colour vision also appeared.

THE Sollux Publishing Company, Slough, has published translations in English of Rost's *Biological Basis of Ultra-violet Therapy*, Jesionek's *Light as Stimulus*, and Bach's *The Treatment of Wounds*, all at 1s. It has also published in English Huldschinsky's *The Ultra-violet Light Treatment of Rickets*, at 6d., and Heusner's *Light Therapy in Pulmonary Tuberculosis*, at 1s. 6d.

THE nature and properties of acriflavine have been fully reported upon in the BRITISH MEDICAL JOURNAL; in fact, they were, we believe, first described by Professor C. H. Browning of Glasgow and his colleagues in our columns. The British Drug Houses, Ltd. (16, Graham Street, City Road, London, N.1), have now put on the market preparations in solution, tablet, and other forms, for the use of medical practitioners. The same firm also supplies euflavine and proflavine.

THE Kaiser Friedrich Hospital at San Remo, which is primarily intended for visitors to the Riviera, was reopened last October under a staff of German physicians.

A PLAY entitled *La Vocation*, which is the joint work of André Pascal (Dr. Henri Rothschild) and Professor Pierre Delbet, has recently been performed at the Théâtre de la Renaissance in Paris.

FROM the French census, taken on March 7th last, it appears that the population of France was 40,743,851 on that date, as compared with 39,209,666 in 1921. But out of this increase of 1,500,000 in five years less than half a million were French. The increase in resident foreigners has become so great that in some areas they form a very substantial proportion of the population. Thus in the department of the Seine one-tenth of the inhabitants are foreigners; in Seine-et-Oise one-thirteenth; while in the Alpes-Maritimes no less than one-third of the population is foreign.

DURING September four cases of plague were notified in Guayaquil, and 21,233 rats were caught, 30 of which were infected.

A FRANCO-DUTCH Scientific Committee has recently been formed as an independent section of the centre for Franco-Dutch studies at Paris. The new committee consists of French and Dutch subsections. In the Dutch subsection physiology is represented by Professor J. J. A. Buytendijk, medicine by Professor A. A. Hijmans van den Bergh, and bacteriology by Professor P. C. Flu.

THE Bureau of the Far East at Singapore reports that for the week ending December 25th there were 21 cases of plague with 10 deaths, 296 cases of cholera with 276 deaths, and 304 cases of small-pox with 79 deaths.

TWO persons, one of whom was the well known physician Professor Ellermann, have recently died of anthrax at Copenhagen after using infected horse-hair shaving brushes.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocre Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"F. J. B." asks for suggestions for the treatment of a baby, aged 6 weeks, suffering from burns (now healed) of third degree on face, with a view to preventing contractures and scarring.

INCOME TAX.

Appointment: Expenses.

"D. W. T." held a hospital appointment from February to October, 1922; his earnings from April 5th to October, 1922, were £198 10s., and he is asked to pay £6 10s. for 1922-23. Can he claim any relief, especially as regards expenses consequent on illness occurring in that year?

*** The tax payable for 1922-23 appears to be as follows:

	£	s.	d.
Salary	198	10	0
Deduct one-tenth earned income relief	19	16	6
Assessable income (say)	179	0	0
Personal allowance	135	0	0
Income chargeable to tax	44	0	0

Tax due thereon at 2s. 6d. in the £ = £5 10s.

"D. W. T." cannot claim to average his earnings for purposes of assessment, and the expenses to which he refers are not allowable.

LETTERS, NOTES, ETC.

MATERNAL MORTALITY.

"F. U." (Cornwall) writes: It is distinctly amusing to read that "the great lights" of the English obstetrical world are only now grasping an elementary fact which was taught over twenty years ago at the Rotunda Hospital, Dublin. Hastings Tweedy's great dictum then was, "the great thing to teach is not how to put in forceps, but *when* to do so"—namely, distress on the part of the mother or foetus as shown by pulse and temperature, and not for the mere sake of shortening labour. Provided doctors will keep these instructions in their midwifery bag and read them before each confinement, I do not deplore the so-called lack of self-reliance exhibited by some nurses which Dr. Fairbairn seems to regret. A nurse cannot always be certain of an occipito-posterior position, and I do not believe the man who states he can be always certain of that position without an examination under an anaesthetic. Provided the general practitioner is properly taught when a student, which he certainly does not seem to be—at least in England—and provided he is keen on the work and that the local hospitals will let him have the use of a bed should he require it, a great deal would be accomplished. This last point seems to be very hard to manage on account of the "closed door" policy of most hospital staffs, though in many cases the men on the staff frankly state they are interested in surgery, not midwifery, and do a very small midwifery practice, though general practitioners themselves. I claim to speak with some experience; I have been at work for twenty years, but, except for Caesarean section, I have never sent a case to hospital. I have had practically every emergency that can crop up; I averaged eighty cases each year for the last eight years, and in twenty years I have had one maternal death—a case of placenta praevia to which I was called by another doctor when the patient was moribund from haemorrhage. Railing at the general practitioner will get us nowhere. In Dr. Fairbairn's book there is much contradiction by the various authors in their choice of treatment, and certainly treatment is advocated which is, to put it mildly, questionable. I refer to the giving of 1 c.cm. of pituitrin in face presentation. Let me forestall critics and say that I never perforate unless in case of a hydrocephalic or when the foetus is dead or the mother placed in a serious position by well meant but futile efforts of somebody who has tried to drag "a highly impossible head through a highly impossible pelvis."

DR. JAMES COOK (Dennistoun) in a letter on this subject writes: I have read Dr. Fairbairn's article (p. 47) with great pleasure, but I am astonished by the figures as to the mortality at the East End Mothers' Lying-in Home. The forceps delivery rate would suggest that it is specially blessed with normal cases. And a total death rate of 1 in 1,500 with not a specialist to take the credit of it is hard to be believed. I think all practitioners will agree that there is no more heart-rending situation than that of a death in childbed. If an institution run by midwives is the solution of this problem let us provide these without delay, for such delay entails the needless loss of four mothers in every 1,000 births still attended by doctors. I would suggest that midwifery should cease to figure in the student's curriculum, that these cases should be attended by women only; then, being freed from the contamination of the man doctor, sepsis and death would cease altogether. The general practitioner would hang his forceps on the wall and study midwifery no more.

HERPES AND VARICELLA.

DR. T. COMPTON (Bognor) writes: I have just had the same experience as that quoted in the letters of Dr. Cyril Helm and Dr. R. Lynn Heard (January 15th, p. 124). On December 17th, 1926, an old lady of 76 developed well marked herpes zoster, beginning in the left dorsal region and extending round to the front of the chest. On January 8th, 1927, her granddaughter, aged 10, developed well marked varicella with a very large number of spots. This was particularly puzzling to me as I could trace no source of infection for the attack.

DR. FRED. W. GAVIN, Assistant M.O. Surrey County Council, writes: The following case is of interest in connexion with the alleged relation between herpes and varicella. On December 20th, 1926, a gardener developed herpes zoster ophthalmicus. On January 5th his three children—two girls, aged 8 and 9 years respectively, and a boy, aged 5—all showed definite chicken-pox. The source of this outbreak of varicella could not be traced apart from the above-mentioned herpes. It is interesting to note that the time between the herpes and chicken-pox is sixteen days. The children were seen by me at one of the school clinics.

A SKIN TEST FOR APPENDICITIS.

DR. A. COWAN GUTHRIE (London) writes to recommend a test which he has found useful in establishing a diagnosis of appendicitis in early and doubtful cases. A hypodermic syringe is filled with 1 c.cm. of anticoli vaccine (250 million to the cubic centimetre). The surface of the abdomen is sponged with methylated spirit, and over the right iliac region a few short scratches, rather more than half an inch in length, are made with the hypodermic needle, care being taken to penetrate only the superficial layer of the epidermis. A few drops of the vaccine are then ejected upon the excoriated surface. The same proceeding is carried out over the left iliac region with a sterilized empty hypodermic needle to act as a control. Within a few minutes, if the test be positive, a well marked inflammatory area shows around the excoriated surface on the right side, extending to rather more than an inch in circumference. This hyperaemic area stands out clearly defined in twenty-four hours, and may last from two or three days to a week. Dr. Guthrie adds that in all cases where a positive reaction occurred pathogenic *B. coli communis* was found in the faeces, and the clinical signs and subsequent history established the value of this test in suspected appendicitis.

TREATMENT OF INFLUENZA.

DR. ALEXANDER FRANCIS (London) writes: Now that influenza is so rife would you allow me to draw attention to the value of Dr. Carl Spengler's "Grippe I. K." Five drops taken in milk at the beginning of an attack will either cause it to abort or greatly modify its course. If the fever is high five drops rubbed on the flexor surface of the forearm (which Spengler claims is ten times more effective than drinking it) will quickly cause a reduction of the temperature. It has been proved to be of value in pneumonia supervening upon influenza. It can be obtained in this country from Messrs. Allen and Hanburys, Ltd.

COMMUNISM AND MALTHUSIANISM.

DR. B. DUNLOP (London, W.) writes with reference to the review (JOURNAL, January 8th, p. 62) of a book on communism: I doubt if the majority of communist leaders have included "eugenic selection for propagating the species" and "limitation of families" in their sociology. The first of these considerations clashes with their basic idea of equality; and as to the second, I know that leaders of the Soviet revolution in Russia scorned the Malthusian suggestion that a high birth-rate would cause a chronic food shortage even under their social system.

THE LABORATORY ASSISTANTS' ASSOCIATION.

HIGH ideals and steady work confer popularity as well as success on any organization, and the growth of the Pathological and Bacteriological Laboratory Assistants' Association since its foundation at Cambridge in 1912 was only to be expected. Its membership has now increased to 412, and the report for the year 1925–26 foreshadows further progress in several directions. Lectures and demonstrations arranged by the four divisions of the association in Great Britain and its component branches have been well attended, and the classes and discussions which deal with practical points in laboratory technique will undoubtedly benefit pathological research generally. Examinations for the certificates of the association were held in July in London, Manchester, Glasgow, and Cardiff, and the insistence on practical efficiency, rather than on theoretical knowledge, renders this side of the work of the association very valuable. It is announced that pathological chemistry will henceforth be one of the major subjects of examination. The competition for the two prizes provided by the fund raised in memory of Professor W. S. Greenfield attracted several papers and exhibits of high quality. The senior prize, of the value of £15, was won by Mr. E. C. Haddon, of Entebbe, Uganda, for a dissertation on the nature and origin of the enrichment principle in culture media. The junior prize was awarded to Mr. P. W. Powles, of Cambridge, for an exhibit of the isolation and cultivation of the bacteria composing the film on teeth. The Sims Woodhead prize this year will be given for the best essay on the ideals of a laboratory assistant. A conference will be held at Cambridge in August. The official organ of the association—*The Laboratory Journal*—is issued quarterly and has been enlarged. Contributions from overseas are prominent, and, in addition to association news and original articles, special attention is given to practical notes on laboratory technique and abstracts of articles in other periodicals. The employment bureau of the association is becoming increasingly useful, both to members and to pathologists generally. Valuable assistance has been rendered in various ways by the Pathological Society of Great Britain, the London School of Hygiene and Tropical Medicine, and the Wellcome Bureau of Scientific Research. Further information about the association may be obtained from the general secretary, Mr. H. Gooding, 10, Holbeck Grove, Victoria Park, Manchester.

WOMEN ON TEACHING HOSPITAL STAFFS.

DR. MARION GILCHRIST (Glasgow) writes: Mr. Norman M. Dott, F.R.C.S.E., has pointed out (January 8th, p. 86) that there has been a woman on the surgical staff of the Royal Edinburgh Hospital for Sick Children since May, 1925. May I say that we in the West have been even more progressive, as a woman—Dr. Katharine Mary Chapman—was appointed chief of the radiological department of the Glasgow Royal Infirmary in June, 1920, and also university lecturer, and held this appointment for several years.

A CORRESPONDENT, writing from Liverpool, informs us that Dr. Mona Roberts of that city was appointed honorary anaesthetist to the Royal Infirmary—a teaching hospital of the University of Liverpool—in 1914.

A DISCLAIMER.

DR. HAROLD DEARDEN (London, W.) writes: My attention has been drawn to certain references to myself in the press of a laudatory character. I wish to disclaim all responsibility for these notices and to state that I am doing all in my power to prevent their repetition.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 27.

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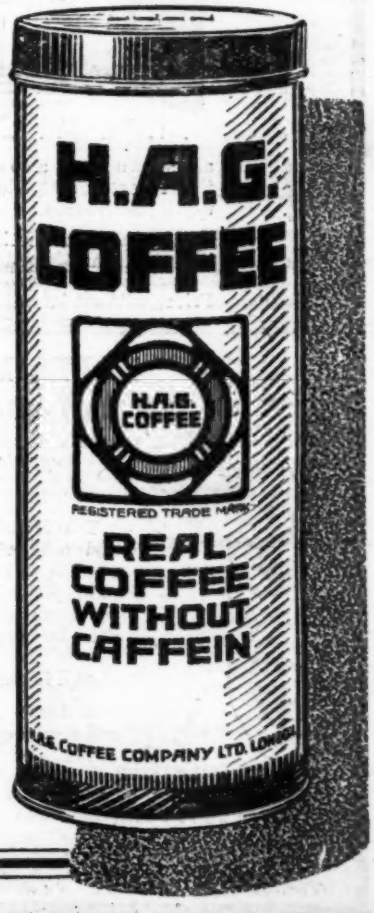

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